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                resulting in a closer connection to BABS
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                with the 228th ACS National Meeting
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NEWS 10 AUG 27  BIOTECHABS/BIOTECHDS: Two new display fields added for legal
                status data from INPADOC
NEWS 11 SEP 01  INPADOC: New family current-awareness alert (SDI) available
NEWS 12 SEP 01  New pricing for the Save Answers for SciFinder Wizard within
                STN Express with Discover!
NEWS 13 SEP 01  New display format, HITSTR, available in WPIDS/WPINDEX/WPIX
NEWS 14 SEP 14  STN Patent Forum to be held October 13, 2004, in Iselin, NJ

NEWS EXPRESS  JULY 30 CURRENT WINDOWS VERSION IS V7.01, CURRENT
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              AND CURRENT DISCOVER FILE IS DATED 11 AUGUST 2004
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FILE COVERS 1907 - 22 Sep 2004 VOL 141 ISS 13
FILE LAST UPDATED: 21 Sep 2004 (20040921/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> **s iron (w) dicyclopentadienyl**

```
        896767 IRON
         11178 IRONS
        897546 IRON
                  (IRON OR IRONS)
          2361 DICYCLOPENTADIENYL
            14 DICYCLOPENTADIENYLS
          2366 DICYCLOPENTADIENYL
                  (DICYCLOPENTADIENYL OR DICYCLOPENTADIENYLS)
L1         871 IRON (W) DICYCLOPENTADIENYL
```

=> **1 and (fuel or coal or gasoline or gasolene or petro or diesel)**

1 IS NOT A RECOGNIZED COMMAND
The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> **s l1 and (fuel or coal or gasoline or gasolene or petro or diesel)**

```
        338807 FUEL
        154521 FUELS
        387594 FUEL
                  (FUEL OR FUELS)
        209691 COAL
         35552 COALS
        211520 COAL
                  (COAL OR COALS)
         65477 GASOLINE
          5334 GASOLINES
         65896 GASOLINE
                  (GASOLINE OR GASOLINES)
           101 GASOLENE
           463 PETRO
            13 PETROS
           476 PETRO
                  (PETRO OR PETROS)
         40636 DIESEL
           421 DIESELS
         40685 DIESEL
                  (DIESEL OR DIESELS)
L2          32 L1 AND (FUEL OR COAL OR GASOLINE OR GASOLENE OR PETRO OR DIESEL)
```

=> **d l2 1-32 all**

L2 ANSWER 1 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1979:189592 CAPLUS
DN 90:189592
ED Entered STN: 12 May 1984
TI **Fuel** compositions containing synergistic mixtures of iron and manganese antiknock compounds
IN Payne, Donald H.
PA du Pont de Nemours, E. I., and Co., USA

h eb c g cg b cg eb

SO U.S., 5 pp.
CODEN: USXXAM
DT Patent
LA English
IC C10L001-18
NCL 044068000
CC 51-6 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 29
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 4139349	A	19790213	US 1977-835805	19770921
PRAI US 1977-835805		19770921		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 4139349	IC	C10L001-18
	NCL	044068000

AB The antiknock properties of unleaded **gasolines** were promoted by the addn. of 0.05-0.25 g Fe-Mn/gal [10-70: 30-90 (wt.) Fe-Mn] in the form of dicyclopentadienyliron (I) [102-54-5] and tricarbonyl(methylcyclopentadienyl)manganese (II) [12108-13-3]. I and II had a synergistic effect. Thus, a **gasoline** (b. 38-219°; contg. sats. 61, olefins 8, and aroms. 31 vol.%; av. research and motor octane nos. 86.7), when combined with 0.125 g Fe/gal and 0.125 g Mn/gal, had an increase in this av. octane no. of 2.3. Increases in the research octane no. for combinations Fe and Mn compds. approx. equal those provided by the more effective Mn compds. at same total metal concns. Increases in the motor octane nos. provided by combinations of Fe and Mn compds. are approx. equal to or greater than those provided by the same wts. of the Mn compd.

ST **gasoline** unleaded manganese iron; methylcyclopentadienyltricarbonylmanganese **gasoline**; cyclopentadiene methyltricarbonyl manganese **gasoline**; **iron dicyclopentadienyl** antiknock **gasoline**; antiknock **gasoline** manganese iron; synergism antiknock **gasoline** additive

IT **Gasoline**
RL: PRP (Properties)
(octane no. of, synergism of iron and manganese compds. in relation to)

IT Octane number
(of **gasoline**, synergism of iron and manganese compds. in relation to)

IT **Gasoline** additives
(antiknock, iron and manganese compds., synergism in use of)

IT 102-54-5 12108-13-3
RL: USES (Uses)
(antiknock additives, for **gasoline**, synergism in use of)

L2 ANSWER 2 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1971:53991 CAPLUS
DN 74:53991
ED Entered STN: 12 May 1984
TI Dicyclopentadienyliron compounds
IN Hartle, Robert J.; Spilners, Ilgvars J.
PA Gulf Research and Development Co.
SO U.S., 4 pp.
CODEN: USXXAM
DT Patent
LA English
IC C07F; C10L
NCL 260439000
CC 29 (Organometallic and Organometalloidal Compounds)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

h eb c g cg b cg eb

PI	US 3535356	A	19701020	US 1968-736013	19680611
PRAI	US 1968-736013		19680611		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 3535356	IC	C07FIC C10L
	NCL	260439000

AB The title compds. find use as **fuel** additives. To prep. them, e.g., a greater than 30% NaOMe soln. in MeOH was prepd from Na and MeOH, anhyd. cryst. FeCl2 was prepd. by refluxing anhyd. FeCl3 in PhCl. The NaOMe soln. and anhyd. FeCl2 was mixed under N and a catalytic amt. of Fe powder was added to form a brown reaction mixt., which was treated under N with methylcyclopentadiene to yield 96% (84% based on Fe) 1,1'-dimethylferrocene.

ST **fuel** additive dicyclopentadienyl irons; dicyclopentadienyl irons **fuel** additive; **irons dicyclopentadienyl fuel** additive

IT 1291-47-0P
RL: IMF (Industrial manufacture); PREP (Preparation)
(manuf. of)

L2 ANSWER 3 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1966:6808 CAPLUS
DN 64:6808
OREF 64:1248h,1249a
ED Entered STN: 22 Apr 2001
TI Mechanism of action of ferrocene on smoke reduction in diffusion flames
AU Chittawadgi, B. S.; Voinov, A. N.
CS Automobile and Highway Inst., Moscow
SO Indian Journal of Technology (1965), 3(7), 209-11
CODEN: IJOTA8; ISSN: 0019-5669
DT Journal
LA English
CC 69 (Toxicology, Air Pollution, and Industrial Hygiene)
AB Ferrocene catalytically accelerates the rate (16 times at 550°) of oxidn. of C particles and reduces smoke formation in diffusion flames by increasing the rate of after burning. The smoke point is increased for **gasoline** (28-50 mm.) and for **diesel fuel** (22-8 mm.). The size of the C particles from **gasoline** is reduced (515 to 446 A.) with a corresponding increase in surface area (62.5 to 72 m.2/g.). The results reported were with ferrocene up to 0.25% levels.
IT Flames
(smoke elimination in **diesel**, Fe dicyclopentadienyl acceleration of C particle oxidn. in)
IT **Gasoline**
(smoke elimination in flames of, Fe dicyclopentadienyl acceleration of C particle oxidn. in)
IT 7440-44-0, Carbon
(combustion of, in petroleum flames, Fe dicyclopentadienyl in)
IT 102-54-5, **Iron, dicyclopentadienyl-**
(in smoke prevention in burning of petroleum products)

L2 ANSWER 4 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1965:497029 CAPLUS
DN 63:97029
OREF 63:17753h,17754a
ED Entered STN: 22 Apr 2001
TI Knocking properties of motor **fuels** and antiknock compounds. III. Synergism and antagonism of antiknock compounds based on lead and iron
AU Vesely, Vaclac; Gursky, Juraj; Uhlie, Ropa

h eb c g cg b cg eb

SO Ropa a Uhlie (1965), 7(7), 215-20
CODEN: ROUHAY; ISSN: 0035-8231
DT Journal
LA Czech
CC 27 (Petroleum and Petroleum Derivatives)
AB cf. CA 63, 28163g. Octane no. was detd. in synthetic mixts. contg. n-C7H16 and iso-C8H18, n-C7H16 and PhMe, n-C7H16, and diisobutene, light primary Romashkino **gasoline**, also **fuel** from reformed heavy **gasoline**, and their mixts. with Me4Pb and Et4Pb, Fe(CO)5 and Et4Pb, ferrocene and Et4Pb, Fe(CO)5 and Me4Pb, ferrocene and Me4Pb, and ferrocene and Fe(CO)5. These mixts. were evaluated, and the most favorable results were obtained with Et4Pb and Me4Pb; good results with Et4Pb and ferrocene.
IT **Gasoline**
(detonation in engine, Fe compds. and Pb compds. in preventing)
IT Detonation
(in engine, Fe compds. and Pb compds. in preventing)
IT 7439-89-6, Iron 7439-92-1, Lead
(in **gasoline** detonation prevention)
IT 75-74-1, Lead, tetramethyl- 78-00-2, Lead, tetraethyl- 102-54-5, **Iron, dicyclopentadienyl-** 13463-40-6, Iron carbonyl, Fe(CO)5
(in **gasoline** detonation prevention in engine)

L2 ANSWER 5 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text | Citing References
AN 1965:416106 CAPLUS
DN 63:16106
OREF 63:2816f-h
ED Entered STN: 22 Apr 2001
TI Knocking properties of motor **fuels** and antiknock compounds. II. Effects of tetramethyllead, pentacarbonyliron, and Ferocene
AU Gursky, Juraj; Vesely, Vaclav
SO Ropa a Uhlie (1965), 7(2), 53-7
CODEN: ROUHAY; ISSN: 0035-8231
DT Journal
LA Slovak
CC 27 (Petroleum and Petroleum Derivatives)
AB cf. ibid. 5(13), 251-4(1963). Ferocene is a mixt. of dicyclopentadienyliron (ferrocene) and Et4Pb. Expts. were conducted with motor **fuels** having an octane no. of 70 and with model **fuels** composed of a mixt. of n-heptane with 2,2,4-trimethylpentane or n-heptane with toluene or diisobutylene. Effects of various compds. on antiknock properties are shown graphically. S in the elementary form and also in various compds., e.g. mercaptans, has considerable influence. Ferocene is most effective with metals found in the **fuels** in amts. up to 0.2 kg./l. Due to the instability of Ferocene and Fe(CO)5, these compds. are not recommended at present.
IT Thiols
(**gasoline** detonation in engine and)
IT Detonation
(in engine, Et4Pb, Me4Pb, kerosine and Fe carbonyl in preventing)
IT 7704-34-9, Sulfur
(compounds, **gasoline** detonation in engine and)
IT 75-74-1, Lead, tetramethyl- 78-00-2, Lead, tetraethyl- 102-54-5, **Iron, dicyclopentadienyl-** 13463-40-6, Iron carbonyl, Fe(CO)5
(detonation prevention by, in engine)
IT 7704-34-9, Sulfur
(**gasoline** detonation in engine and)

L2 ANSWER 6 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text | Citing References

h eb c g cg b cg eb

AN 1965:416104 CAPLUS
DN 63:16104
OREF 63:2816d-f
ED Entered STN: 22 Apr 2001
TI Lead- and iron-antiknock compositions
AU Gursky, Juraj; Vesely, Vaclav
SO Freiberger Forschungshefte A (1964), 340A, 303-21
CODEN: FFRAA7; ISSN: 0071-9390
DT Journal
LA German
CC 27 (Petroleum and Petroleum Derivatives)
AB Et4Pb, Me4Pb, ferrocene, and Fe(CO)5 were evaluated for antiknock activity in a 2-stroke test engine; no road tests were made. Alkane **fuels** were influenced the most, alkenes next, and aromatics least. S compds. and S in 0.1% concn. caused 3- and 5-unit redns. for **gasolines** without and with antiknock agent, resp. The alkylleads were affected more by S than by the Fe compds. (ferrocene was better than Fe(CO)5). With less than 0.2 g. metal/l. **fuel**, ferrocene was the most effective but ranked worst at higher concns. At 0.2-0.5 g./l. **fuel** concn., Et4Pb was the best. Above 0.6 g./l. concn., Fe(CO)5 was superior to Et4Pb. Activity of Me4Pb increased with increase in the concn. At lower concns., the motor octane no. was higher, but at higher concns. the research method gave higher values. The more volatile antiknock agents were better over a range of **gasoline** compns. obtained by distn. of com. catalytic reformate **gasolines** initially contg. them; Fe(CO)5 was the best and Me4Pb was much better than Et4Pb. Fe-contg. antiknocks, though having a good activity, were ruled out because of the erosive nature of the Fe oxides formed.
IT **Gasoline**
(antiknock additives for, tetraethyllead, tetramethyllead kerosine and Fe carbonyl as)
IT Detonation
(in engine, Et4Pb, Me4Pb, kerosine and Fe carbonyl in preventing)
IT 7704-34-9, Sulfur
(compounds, **gasoline** detonation in engine and)
IT 75-74-1, Lead, tetramethyl- 78-00-2, Lead, tetraethyl- 102-54-5, **Iron, dicyclopentadienyl-** 13463-40-6, Iron carbonyl, Fe(CO)5
(detonation prevention by, in engine)
IT 7704-34-9, Sulfur
(**gasoline** detonation in engine and)

L2 ANSWER 7 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1965:47144 CAPLUS
DN 62:47144
OREF 62:8379a-b
ED Entered STN: 22 Apr 2001
TI Analysis of organometallic sandwich compounds. I. Titrimetric microdetermination of iron in ferrocene and its derivatives
AU Renger, F.; Jenik, J.
CS Vysoka Skola Chem.-Technol., Pardubice, Czech.
SO Sb. Ved. Praci, Vysoka Skola Chem.-Technol., Pardubice (1963), (1), 55-9
DT Journal
LA Czech
CC 2 (Analytical Chemistry)
AB The sample (2-4 mg.) is dissolved in 15 ml. of a suitable solvent (**gasoline**, Me2CO, AcOH) and shaken occasionally for 30 min. with 25 ml. of satd. Br water. To the H2O layer are added 4 ml. of M NaOAc soln. and 0.5 ml. of HCOOH. After the Br is destroyed, the soln. is titrated with 0.01M Complexon III in the presence of sulfosalicylic acid (3-5 mg.) as indicator. At the end point the color changes from red to colorless. The error is ±0.4%, and the standard deviation is 0.233.
IT 1,3,6-Cycloheptatriene-1-carbonitrile, 4-hydroxy-5-oxo-, iron complex

h eb c g cg b cg eb

Iron, with 4-hydroxy-4-oxo-1,3,6-cycloheptatriene-1-carbonitrile
IT 7439-89-6, Iron
(analysis, detn. in ferrocene and its derivs.)
IT 102-54-5, **Iron, dicyclopentadienyl-**
(derivs., Fe detn. in)
IT 672-76-4, 2,4,6-Cycloheptatrien-1-one, 2-hydroxy-5-isopropyl- 2745-13-3, 1,3,6-Cycloheptatriene-1-sulfonic acid, 4-hydroxy-5-oxo- 3084-13-7, 2,4,6-Cycloheptatrien-1-one, 2-hydroxy-5-nitro- 3084-17-1, 2,4,6-Cycloheptatrien-1-one, 5-chloro-2-hydroxy- 3172-00-7, 2,4,6-Cycloheptatrien-1-one, 5-bromo-2-hydroxy- 3266-92-0, 1,3,6-Cycloheptatriene-1-carbonitrile, 4-hydroxy-5-oxo-
(ionization of)
IT 102-54-5, **Iron, dicyclopentadienyl-**
(iron detn. in)

L2 ANSWER 8 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1964:403557 CAPLUS
DN 61:3557
OREF 61:512g-h,513a
ED Entered STN: 22 Apr 2001
TI Synthesis of dicyclopentadienyl iron from tailings of crude oil processing products
AU Mardanov, M. A.; Veliev, K. G.
SO Sb. Nauchn.-Tekhn. Inform. Azerb. Inst. Nauchn.-Tekhn. Inform., Neftepererabat. i Khim. Prom. (1962), (4), 49-52
From: Ref. Zh., Khim. 1963, Abstr. No. 17P193.
DT Journal
LA Unavailable
CC 27 (Petroleum and Petroleum Derivatives)
AB Dicyclopentadienyliron (I) was obtained from the C6H6 overhead fraction formed as a waste product from the pyrolysis of crude oil. Cyclopentadiene was obtained from this fraction by polymerization (100°, 5-6 atm., 5 hrs.) to obtain a stable dimer of cyclopentadiene followed by depolymerization of the dimer. I was obtained in the lab. by various methods. The highest I yields were obtained from the reaction of an Mg org. compd. of cyclopentadiene with dry, anhyd. FeCl2. **Fuels** contg. different concns. of I (a cryst. substance with m.p. 173.5° and having good soly. in petroleum products) were tested on the app. IT9-3 and in a miniature chamber. The addn. of 0.005-0.1% I to **fuels** No. 1 and No. 2, and to summer **diesel fuel** decreased C formation; the optimum I concn. was 0.01%, which reduced C formation by 20-30%. The addn. of I to **gasolines** increased their octane nos.; this increase was less for thermal cracking **gasolines** than for straight-run **gasolines**. I had practically no effect on the basic phys.-chem. properties of **gasolines**.
IT **Gasoline**
(combustion of, in engine, dicyclopentadienyl iron in improving)
IT **Fuels**
(**diesel**, additives for, dicyclopentadienyl iron as)
IT Combustion
(of **diesel fuel** and **gasoline** in engines, dicyclopentadienyl iron improvement of)
IT 102-54-5, **Iron, dicyclopentadienyl-**
(manuf. of)
IT 542-92-7, Cyclopentadiene
(sepn. from petroleum pyrolysis product)

L2 ANSWER 9 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1964:3318 CAPLUS
DN 60:3318

h eb c g cg b cg eb

OREF 60:561e-f
ED Entered STN: 22 Apr 2001
TI Arylferrocenes
IN Rausch, Marvin D.
PA Monsanto Chemical Co.
SO 2 pp.
DT Patent
LA Unavailable
NCL 260439000
CC 39 (Organometallic and Organometalloidal Compounds)

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 3098864		19630723	US	19610419

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 3098864	NCL	260439000

AB Arylferrocenes are prepd. by mixing equimolar amts. of diferrocenylmercury with a diarylmercury in the presence of metallic Ag catalyst. A mixt. (under N) of 1.24 g. diferrocenylmercury, 0.77 g. diphenylmercury, and 3.45 g. Ag was heated at 200-300° 21 hrs. and the products sepd. under reduced pressure (aspirator). A yield of 0.51 g. phenylferrocene (m. 111-12°) was obtained after crystn. from heptane and chromatography on alumina. The isomeric 2-, 3-, and 4-biphenylylferrocenes (C22H18Fe) were similarly prepd. (m.p. of purest sample and yield in g. from 0.86 g. of diferrocenylmercury given): 133-4°, 0.03; 102.5-3.0°, 0.11; and 164-5°, 0.12, resp. The compds. are useful as antioxidants (in paints and polymers) and as **gasoline** antiknock agents.
IT Ferrocene, (2-biphenylyl)-
Ferrocene, (3-biphenylyl)-
Ferrocene, (4-biphenylyl)-
IT Biphenyl, 2-(cyclopentadienyl)-
Biphenyl, 3-(cyclopentadienyl)-
Biphenyl, 4-(cyclopentadienyl)-
(cyclopentadienyliron deriv.)
IT 102-54-5, **Iron, dicyclopentadienyl-**
(aryl derivs.)
IT 88243-06-5, Benzene, cyclopentadienyl-
(cyclopentadienyliron deriv.)
IT 1287-25-8, Ferrocene, phenyl-
(prepn. of)

L2 ANSWER 10 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1963:462595 CAPLUS
DN 59:62595
OREF 59:11568d-f
ED Entered STN: 22 Apr 2001
TI Dicyclopentadienyliron and dicyclopentadienylnickel
IN Hobbs, Charles L., Jr.
PA E. I. du Pont de Nemours & Co.
SO 2 pp.
DT Patent
LA Unavailable
NCL 260439000
CC 39 (Organometallic and Organometalloidal Compounds)

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 3092647		19630604	US	19521001

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES

h eb c g cg b cg eb

US 3092647 NCL 260439000

AB The anhyd. halides of Fe and Ni are treated with cyclopentadienylsodium (I) in ether or a tertiary amine to give the title compds. Thus, 33 parts cyclopentadiene is added to a soln. of Na acetylide (from 11.5 parts Na and excess C2H2) in 275 parts liquid anhyd. NH3, the mixt. is refluxed at -32° under N, the NH3 is replaced by dry Et2O, and the mixt. is refluxed at 35° for 1 hr. to give I. A soln. of 28 parts anhyd. FeCl8 in dry Et2O is added, the mixt. is agitated at room temp. 16 hrs., filtered, and the filtrate is concd. to give 14.9 parts dicyclopentadienyliron, m. 173°, 44.1% yield (FeCl8). Similarly prepd. is dicyclopentadienylnickel which sublimes at 95-8°/1.3 mm. The products can be used in the prepn. of antiknock **fuels**.

IT **Fuels**
(internal-combustion, antiknock additives for, dicyclopentadienyliron and dicyclopentadienylnickel as)

IT Cyclopentadiene, (dichloromethyl)-

IT 102-54-5, **Iron, dicyclopentadienyl-** 1271-28-9, Nickel, dicyclopentadienyl-
(as antiknock additive for **fuels**)

L2 ANSWER 11 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1963:80509 CAPLUS

DN 58:80509

OREF 58:13689a

ED Entered STN: 22 Apr 2001

TI Hydrocarbon-soluble hydrocarbon-organometallic composition in **diesel fuels** for ignition jet gas motors

IN Hesselberg, Howard E.

PA Ethyl Corp.

SO 5 pp.

DT Patent

LA Unavailable

NCL 46A

CC 27 (Petroleum and Petroleum Derivatives)

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 1145434		19630314	DE	
PRAI	US		19580626		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 1145434	NCL	46A

AB A hydrocarbon-sol. hydrocarbon-organometallic compn. in which the metal of order no. 25-8 is bound to the org. part of the mol. (e.g. metal carbonyls or cyclopentadiene-metals) either alone as 0.264-2.64 g./l. **fuel** or as an alkyllead compn. in which each alkyl residue contains up to 8 C atoms and 0.0132-0.793 g./l. of a metal for use in ignition jet gas motors.

IT Transition metal compounds
(**diesel fuel** contg., for pilot injection engines)

IT **Fuels**
(**diesel**, contg. metal carbonyls and cyclopentadienyl metal compds. for pilot injection engines)

IT Cyclopentadiene, methyl-, manganese complex
(**diesel fuel** contg., for pilot injection engines)

IT 102-54-5, **Iron, dicyclopentadienyl-** 1762-28-3, Lead, triethylmethyl- 12079-65-1, Manganese, tricarbonylcyclopentadienyl- 12108-13-3, Manganese, tricarbonyl(methylcyclopentadienyl)- 13463-40-6, Iron carbonyl, Fe(CO)5
(**diesel fuel** contg., for pilot injection engines)

L2 ANSWER 12 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

h eb c g cg b cg eb

Full Text | Citing References

AN 1963:59892 CAPLUS
DN 58:59892
OREF 58:10241a-c
ED Entered STN: 22 Apr 2001
TI Ferrocenyl aryl ethers
IN Rausch, Marvin D.
PA Monsanto Chemical Co.
SO 4 pp.
DT Patent
LA Unavailable
NCL 260439000
CC 39 (Organometallic and Organometalloidal Compounds)

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3604026		19621113	US	19600705

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 3604026	NCL	260439000

GI For diagram(s), see printed CA Issue.
AB Ferrocenyl aryl ethers and thioethers can be used as antioxidants and **gasoline** antiknock agents. A mixt. of 0.96 g. PhOH and 0.28 g. KOH was heated at 155° and cooled, 0.94 g. iodoferrocene and 0.02 g. Cu bronze were added, the tube contg. the reactants was sealed under N, and the mixt. heated at 155-60° for 8 hrs. The mixt. was then cooled, extd. with boiling C6H6, the exts. were washed with H2O, 10% NaOH, and with H2O, and the C6H6 was evapd. in vacuo. The residue was taken up in a (1:1) hexane-C6H6 mixt., chromatographed on an Al2O3 column, and eluted with hexane to give 0.202 g. ferrocenyl Ph ether (I, R = PhO), m. 93-3.5° (hexane). Similarly prepd. were I (R and m.p. given): 3-PhOC6H4O, 74.5-5° (hexane); 2-C10H7O, 143-3.5° (hexane); 2-PhC6H4O, 141.5-2° (hexane); 4-BrC6H4O, 87-7.5°; PhS, 111.5-12° (hexane).
IT Ferrocene, (2-biphenylyloxy)-
Ferrocene, (2-naphthyloxy)-
Ferrocene, (p-bromophenoxy)-
Ferrocene, [m-(m-phenoxyphenoxy)phenoxy]-
Ferrocene, phenethyl-
IT Ether, cyclopentadienyl phenyl
(cyclopentadienyliron deriv.)
IT 102-54-5, **Iron, dicyclopentadienyl-**
(ether and sulfite derivs.)
IT 1294-11-7, Iron, cyclopentadienyl(phenoxycyclopentadienyl)- 12212-52-1, Ferrocene, (phenylthio)-
(prepn. of)

L2 ANSWER 13 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1963:52288 CAPLUS
DN 58:52288
OREF 58:8828d-h,8829a-b
ED Entered STN: 22 Apr 2001
TI Preflame reactions in the spark ignition engine: the influence of tetraethyllead and other antiknocks
AU Downs, D.; Griffiths, S. T.; Wheeler, R. W.
SO Journal of the Institute of Petroleum (1963), 49, 8-25
CODEN: JIPEA6; ISSN: 0020-3068
DT Journal
LA Unavailable
CC 27 (Petroleum and Petroleum Derivatives)
AB Knock in the spark ignition engine, and esp. the antiknock activity of

h eb c g cg b cg eb

Et4Pb (TEL) and other **fuel** additives, has been studied with 3 principal techniques. In the 1st, a special valve was used to ext. samples from the "end gas" of the engine prior to knock, and these samples were analyzed for peroxide, aldehyde, and MeOH content. In the 2nd, the engine was motored without spark ignition, and the cool and hot flame limits and cool flame intensities were noted over a wide range of mixts. Last, the effectiveness of antiknock additives, alone and in combination, was detd. on a fired engine. Chromatographic methods of analysis show that org. peroxides are important in the 1st stage of 2-stage ignition. In the 2nd stage, H2O2 predominates and TEL acts specifically to reduce the H2O2 concn. The MeOH and HCHO in the "end gas" arise principally in the 2nd stage, generally together, with the MeOH only 5% of the HCHO concn. Straight-chain. **fuels** give particularly high MeOH concns. in relation to HCHO-Additives, such as TEL, lower the concn. of HCHO and MeOH, but this effect is less in straight-chain **fuels**. There seems to be no close relation for different **fuels** between cool flame intensity in a motored engine and HCHO and MeOH concns. in the fired engine. Both the temp.-sensitivity and the Pb content of the **fuels** have a strong influence on cool flame intensity. At a fixed Pb level, there is a reciprocal relation between cool flame intensity and temp. sensitivity, indicating that sensitive **fuels** are those which have a smaller component of "low" temp. oxidn. in their knock process; this is confirmed by the lower peroxide and aldehyde development in the "end gas" prior to knock. The antiknock additives investigated fall into 2 groups. In the first, TEL and ferrocene reduce the cool flame intensity, but have little effect on the cool flame limit. They appear to exert their major antiknock effect on the reactions occurring during the passage of the cool flame and prior to the hot flame. In the 2nd group, monomethylaniline (MMA), Fe(CO)5, and Ni(CO)4 raise the cool flame limit as well as the hot flame limit and have an even greater effect on the cool flame intensity. They must therefore act on the reactions prior to the passage of the cool flame. Mixts. of TEL with ferrocene and TEL with MMA showed evidence of synergism not present with mixts. of TEL and either Fe(CO)5 or Ni(CO)4. In motored-engine expts. with a wide range of pure **fuels**, ferrocene, Fe(CO)5, and Ni(CO)4 showed a considerable antioxidant effect in BuOH under conditions where TEL was a pro-oxidant (not demonstrated with any other **fuel** tested), Under fired engine conditions, although TEL is, with most **fuels**, a more effective antiknock than Fe(CO)5; in C6H6, BuOH, and MeOH, the reverse is the case. This may be due to the low or zero cool flame intensities of all of these **fuels**; the presence of a cool flame may be necessary to decomp. the more stable TEL. There are other **fuels** having equally low cool flame intensities in which TEL has the greater antiknock effect. The difference between the 2 additives may be due to the proknock effect of the Et radicals formed on decompn. of TEL in **fuels** having a low Pb susceptibility. Tests with fogs or fine dispersions of PbO produced externally to the engine and introduced in this form into the cylinder showed that PbO has all antiknock effect that is much less than that of the equiv. amt. of metal introduced as TEL. This may be due to the necessity of having the PbO in an extremely divided form for max. effective ness and the virtual impossibility of preventing the agglomeration of PbO particles in fogs produced outside the engine. In a limited series of expts., both with methylcyclopentadienyl Mn tricarbonyl and with silanes, promotion of TEL was shown with the Mn compd. but not with the silanes.

IT **Gasoline**
(combustion of, in engine, preflame reactions in, antiknock agent effect on)

IT Flames
(cool, in spark ignition engine)

IT Aldehydes
Peroxides
(formation of, in preflame reaction in engine, antiknock agent effect on)

IT Combustion

h eb c g cg b cg eb

(in engine (internal-combustion), preflame reactions in, antiknock agent effect on)
IT Detonation
(in engine, antiknock agent effect on preflame reactions in)
IT Combustion
(of hydrocarbons, preflame reactions in, in engine, antiknock agent effect on)
IT Cyclopentadiene, methyl-, manganese complex
(detonation prevention in engines by)
IT 25167-70-8, Pentene, 2,4,4-trimethyl- 25339-56-4, Heptene
(combustion in engine, preflame reactions in, antiknock agent effect on)
IT 71-36-3, Butyl alcohol 71-43-2, Benzene 74-82-8, Methane
(combustion of, in engine, preflame reactions in, antiknock agent effect on)
IT 110-82-7, Cyclohexane 540-84-1, Pentane, 2,2,4-trimethyl-
(combustion of, in engines, preflame reactions in, antiknock agent effect on)
IT 142-82-5, Heptane
(cool flames in, in engine, preflame reactions in, antiknock agent effect on)
IT 12108-13-3, Manganese, tricarbonyl(methylcyclopentadienyl)-
(detonation prevention by, in engine)
IT 1317-36-8, Lead oxide, PbO
(detonation prevention in engine by)
IT 2025-56-1, Ethyl (free radical)
(detonation prevention in engine by tetraethyllead and)
IT 50-00-0, Formaldehyde 67-56-1, Methanol 7722-84-1, Hydrogen peroxide
(formation of, in preflame reaction in engine, antiknock agent effect on)
IT 100-61-8, Aniline, N-methyl-
(in preflame reactions in engine)
IT 78-00-2, Lead, tetraethyl- 102-54-5, **Iron, dicyclopentadienyl-** 13463-39-3, Nickel carbonyl, Ni(CO)4
13463-40-6, Iron carbonyl, Fe(CO)5
(preflame reactions in engine in relation to)

L2 ANSWER 14 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1962:484710 CAPLUS
DN 57:84710
OREF 57:16973c-d
ED Entered STN: 22 Apr 2001
TI Additives for **fuel** oil or **diesel fuel**
IN Gay, Raymond; Siganos, Emmanuel
PA Esso Research and Engineering Co.
SO 3 pp.
DT Patent
LA Unavailable
NCL 23B
CC 52 (Petroleum and Petroleum Derivatives)

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 1126053		19620322	DE	
PRAI	FR		19580115		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 1126053	NCL	23B

AB Addn. of 0.02-0.1% of an 1:1-mixt. of cyclopentadienyliron and triethanolaminesulfonate to **diesel fuel** or **fuel** oils decreases the amt. of exhaust smoke formation during combustion.
IT Cleaning compositions

h eb c g cg b cg eb

(as combustion improvers in **fuel** oil)
IT Cycloalkenes
(metal derivs., as combustion improvers in **fuel** oil)
IT Combustion
(of **diesel fuel** and **fuel** oil, improvement by detergents and metal derivs. of cycloalkenes)
IT Ethanol, 2,2',2''-nitrilotri-, sulfate, mixt. with dicyclopentadienyliron
(as combustion improver in **fuel** oil)
IT 102-54-5, **Iron, dicyclopentadienyl-**
(combustion improver from 2,2',2''-nitrilotriethanol sulfate and, in **fuel** oil)

L2 ANSWER 15 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1962:450347 CAPLUS
DN 57:50347
OREF 57:10094f-g
ED Entered STN: 22 Apr 2001
TI Hypergolic additives for rocket **fuels**
IN Pedersen, Charles John
PA E. I. du Pont de Nemours & Co.
SO 5 pp.
DT Patent
LA Unavailable
CC 51 (Propellants and Explosives)

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3038299		19620612	US	19531215

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 3038299		

AB Hydrocarbon **fuel** compns. are rendered hypergolic with white fuming HNO3 by dispersion therein of 0.1-50.0% by wt. of an undissolved dicyclopentadienyliron (I) deriv. Thus, about 10-20 mg. of (aminocyclopentadienyl)cyclopentadienyliron, (p-hydroxyphenyl)cyclopentadienyliron, bis(phenylcyclopentadienyl)iron, bis[(p-chlorophenyl)cyclopentadienyl]iron, or the reaction product of I and HCHO in the solid state is covered with 3 g. of JP-4 **fuel** and about 0.5-1.0 g. of white fuming HNO3 is added. In all cases, ignition is spontaneous. When <25% by wt. of the I deriv. is added in soln. form, no ignition occurs, but fuming is more vigorous.
IT Combustion
(of propellants, contg. dicyclopentadienyliron or its derivs. with HNO3)
IT Propellants
(rocket, dicyclopentadienyliron deriv.-fuming HNO3-hydrocarbon hypergolic)
IT **Fuels**
(rocket, from dicyclopentadienyliron derivs. and hydrocarbons)
IT Iron, cyclopentadienyl(p-hydroxyphenyl)-
(**fuels** (rocket) from)
IT Cyclopentadienylamine, cyclopentadienyliron deriv.
(rocket **fuels** from)
IT 1273-82-1, Iron, (aminocyclopentadienyl)cyclopentadienyl-
(**fuel** (rocket) from)
IT 12098-02-1, Iron, bis[(p-chlorophenyl)cyclopentadienyl]- 12098-13-4, Iron, bis(phenylcyclopentadienyl)-
(**fuels** (rocket) from)
IT 7697-37-2, Nitric acid
(propellants (rocket) from dicyclopentadienyliron derivs., hydrocarbon **fuels** and fuming)
IT 50-00-0, Formaldehyde

h eb c g cg b cg eb

(reaction products of, with dicyclopentadienyliron, rocket **fuel** compns. with JP-4 **fuel** and propellants with HNO3)

IT 102-54-5, **Iron, dicyclopentadienyl-**
(reaction products with HCHO, rocket **fuel** compns. with JP-4 propellants with HNO3, and **fuels** (rocket) from hydrocarbons and, propellant compns. contg.)

IT 1273-08-1, Phenol, P-(cyclopentadienyliron) deriv.
(rocket **fuels** from)

L2 ANSWER 16 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1962:39750 CAPLUS
DN 56:39750
OREF 56:7598g-h
ED Entered STN: 22 Apr 2001
TI Motor-**fuel** additives
IN Brown, Jerome Engel
PA Ethyl Corp.
DT Patent
LA Unavailable
NCL 46A
CC 52 (Petroleum and Petroleum Derivatives)

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI DE 1101853			DE	
PRAI US		19570712		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 1101853	NCL	46A

AB To a **gasoline** are added per l.: dicyclopentadienyliron (0.0132-0.0264 g. as Fe), PbEt4 (0.5601.675 g. Pb), and C2H4Br2 or C2H4Cl2 (0.5 theory of Br or 1.0 theory of Cl calcd. to Pb halide); the Fe compd. affords protection against motor wear. Other compns. are listed that contain the Pb as Pb(C8H17)4, PbMeEt3, or PbBu4

IT **Gasoline**
(with dicyclopentadienyliron and Pd compds.)

IT 102-54-5, **Iron, dicyclopentadienyl-** 1762-28-3, Lead, triethylmethyl- 1920-90-7, Lead, tetrabutyl- 25729-69-5, Lead, tetraoctyl-
(**gasoline** contg.)

L2 ANSWER 17 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1961:78589 CAPLUS
DN 55:78589
OREF 55:14889f-i
ED Entered STN: 22 Apr 2001
TI The behavior of additives in explosions and the mechanism of antiknock
AU Callear, I. A. B.; Norrish, R. G. W.
CS Univ. Cambridge, UK
SO Proc. Roy. Soc. (London) (1960), A259, 304-24
DT Journal
LA Unavailable
CC 22 (Petroleum, Lubricants, and Asphalt)
AB cf. preceding abstr. The behavior of TeMe2, I2, SiMe4, SnEt4, Me manganese tricarbonyl (I), Fe(CO)5, ferrocene, Hg vapor, and (Me2CH)2Hg was observed during explosions of AmNO2, heptane, and O. After flash initiation, the reactions were followed by kinetic absorption and emission spectroscopy. The effect on antiknock action, smoke formation, induction period (preflame reaction), and light emission is given. With the Sn and transition-metal additives, smoke formed during the induction periods,

h eb c g cg b cg eb

characterized by a continuous scattering over the entire continuum. I increased or decreased the induction period, according to conditions. TeMe2 and I2 increased the induction period by homogeneous reactions. None of the other compds. changed the duration of the induction period, including the compds. which are known to be antidetonators. In the presence of the Fe and Sn compds., smoke formed early in the induction period which indicates that the colloidal solids formed during the combustion of these compds. do not delay auto-ignition by preflame end gas reactions. It follows that there are 2 mechanisms of antiknock. The occurrence of heterogeneous inhibition is unlikely, because there is insufficient exposure of surfaces, the efficiency of reaction of chain centers at surfaces is low, and TeMe2, I2, and PbEt4 act homogeneously. It is proposed that the 2nd mechanism of antiknock, applicable to Fe and Mn compds., involves the effect of the additive on the explosions; it is suggested that the increase in radiant cooling, caused by excitation and fluorescence of gaseous metal oxides, plays an important role in this effect. I also exhibits antiknock properties of the first type.

IT **Gasoline**
(antiknock properties of)

IT Light
(emission of, from detonation, additive effect on)

IT Smoke
(formation of, in detonation, additive effect on)

IT Detonation
(in engines, additives for prevention of)

IT Manganese, (methylcyclopentadienyl)manganese tricarbonyl
(detonation prevention by, mechanism of)

IT 628-05-7, Pentane, 1-nitro-
(detonation of, mechanism of prevention of)

IT 142-82-5, Heptane
(detonation of, prevention of, mechanism of)

IT 75-76-3, Silane, tetramethyl- 102-54-5, **Iron, dicyclopentadienyl-** 7439-97-6, Mercury
(detonation prevention by)

IT 593-80-6, Methyl telluride 597-64-8, Tin, tetraethyl- 1071-39-2, Mercury, diisopropyl- 7553-56-2, Iodine 13463-40-6, Iron carbonyl, Fe(CO)5
(detonation prevention by, mechanism of)

L2 ANSWER 18 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1961:73052 CAPLUS
DN 55:73052
OREF 55:13832i,13833a-b
ED Entered STN: 22 Apr 2001
TI **Fuels** for internal-combustion engines
IN Beynon, John H.; Jackson, Robert G.
PA "Shell" Research Ltd.
DT Patent
LA Unavailable
NCL 45A
CC 22 (Petroleum, Lubricants, and Asphalt)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI DE 1052743		19590312	DE	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 1052743	NCL	45A

AB Deposit formation in **gasoline** engines is reduced if the **gasoline** is treated with cyclopentadienyl-metal complexes and conventional oil-sol. org. Si, B, P, or As compds. PbEt4 and other agents may be added. Thus,

h eb c g cg b cg eb

4.54 l. aviation **gasoline** (octane no. 73) was treated with 7 g. dicyclopentadienyliron (I) and 16 g. tris(diisopropylmethyl) borate, and tested in an engine. In a similar case, 7 g. I and 5.5 g. of a com. mixt. of tetra-and di-Et silicates were added.

IT **Gasoline**
(antiknock additives for, metal derivs. of cyclopentadiene and derivs. as, with scavengers)

IT 542-92-7, Cyclopentadiene
(and derivs., metal derivs., as **gasoline** antiknock agents)

IT 102-54-5, **Iron, dicyclopentadienyl-**
(as **gasoline** antiknock agent)

L2 ANSWER 19 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1960:134781 CAPLUS
DN 54:134781
OREF 54:25766g-i
ED Entered STN: 22 Apr 2001
TI **Fuel** oils and **diesel fuels**
PA Esso Research and Engineering Co.
SO Addn. to Brit. 823,839 (CA 54, 8068g)
DT Patent
LA Unavailable
CC 22 (Petroleum, Lubricants, and Asphalt)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 835870		19600525	GB	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
GB 835870		

AB A **fuel** oil is composed of 0.001-0.2% of an additive compn. mixed with a petroleum distillate, b. >400°F. The additive contains 10-50% of an alicylic compd. of Fe and 50-90% of a detergent. The petroleum distillate includes light **fuel** oils, **diesel fuels**, and heavy furnace **fuels**. Thus, 0.1% of an additive contg. 50% cyclopentadienyliron and 50% triethanolamine petroleum sulfonate was added to a gas oil of 0.857 d. at 15°, 1.43 Engler viscosity at 20°, and 4.8 cetane index. By using this compn. as a **diesel fuel**, it was possible to obtain a 13% increase in horsepower at a const. smoke index of 2.0 over the gas oil without additives.

IT **Fuels**
(**diesel**, with combustion-improving detergents and Fe compds.)

IT Ketones
(**fuel** (**diesel**) contg.)

IT Glycerides
(**fuel** (**diesel**) contg. unsat.)

IT Cleaning compositions
(mixts. with Fe compds., **fuel** oil combustion improvers of)

IT Combustion
(of **diesel fuel** and **fuel** oil, detergent-Fe compd. improvers for)

IT Sulfonic acids
(triethanolamine derivs., mixt. with cyclopentadienyl Fe, **fuel** oil combustion improver of)

IT **Fuel** oil
(with combustion-improving detergents and Fe compds.)

IT Ethanol, 2,2',2''-nitrilotri-, petroleum sulfonate, mixt. with cyclopentadienyliron
(as **fuel**-oil combustion improver)

IT **Iron, dicyclopentadienyl-**, mixt. with triethanolamine petroleum sulfonate

h eb c g cg b cg eb

(**fuel** oil combustion improvement by)
IT 7439-89-6, Iron
(compounds, mixts. with detergents, **fuel** oil combustion improvers of)
IT 122-79-2, Acetic acid, phenyl ester
(**diesel fuel** contg.)

L2 ANSWER 20 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text | Citing References
AN 1960:83481 CAPLUS
DN 54:83481
OREF 54:15921e-f
ED Entered STN: 22 Apr 2001
TI Knock-inhibiting additives for crankcase lubricants for internal-combustion engines
IN Beynon, John H.; Jackson, Robett G.
PA "Shell" Research Ltd.
DT Patent
LA Unavailable
NCL 23C
CC 22 (Petroleum, Lubricants, and Asphalt)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI DE 961916		19570411	DE	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 961916	NCL	23C

AB Antiknock materials of the general c formula MR2, in which M is Fe, Ni, Ru, or Os, and R is a substituted or unsubstituted cyclopentadienyl group, are added to the lubricant. Thus, a soln. of 1 g. dicyclopentadienyliron (I) in 100 cc. SAE-20 motor oil decreased the necessary octane no. of the **gasoline** by 9. Bis(ethylcyclopentadienyl)- and bis(butylcyclopentadienyl)iron are also mentioned. I is said to be 4 times as effective as Et4Pb, with respect to the duration of effectiveness after addn. to the lubricant.
IT Lubricants
(antiknock additives for, metal compds. of cyclopentadiene and derivs. as)
IT Detonation
(in engines, lubricants contg. metal compds. of cyclopentadiene and derivs. in prevention of)
IT 7440-02-0, Nickel 7440-04-2, Osmium 7440-18-8, Ruthenium
(compds., lubricants contg. antiknock)
IT 7439-89-6, Iron
(compounds, lubricants contg. antiknock)
IT 102-54-5, **Iron, dicyclopentadienyl-** 1273-97-8, Iron, bis(ethylcyclopentadienyl)- 1274-08-4, Iron, bis(butylcyclopentadienyl)-
(**fuels** contg.)
IT 102-54-5, **Iron, dicyclopentadienyl-**
(lubricants contg.)

L2 ANSWER 21 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text | Citing References
AN 1960:83480 CAPLUS
DN 54:83480
OREF 54:15921b-e
ED Entered STN: 22 Apr 2001
TI Lubricating oil-additive compatibility improvers
IN Michaels, Adlai E.; Hakala, Niilo V.
PA Esso Research and Engineering Co.

h eb c g cg b cg eb

SO Continuation-in-part of U.S. 2,602,048 (CA 47, 303e)
DT Patent
LA Unavailable
CC 22 (Petroleum, Lubricants, and Asphalt)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2936284		19600510	US	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2936284		

AB The compatibility of certain oil additives is improved and turbidity is corrected by addn. of 0.01-5% by wt. of an oxygenated org. compd. (I) of the formula RO(CH2CH2O)nR, in which R is an alkyl group having 1-8 C atoms, R' is H or an alkyl group having 1-8 C atoms, and n = 1-8. Specifically, organometallic and highly polymeric additives are made compatible and any depreciation of the pour point is corrected. Typical I are ethylene glycol monomethyl ether, diethylene glycol monoethyl ether, triethylene mono-alkyl ethers, and polypropylene glycol mono- or dialkyl-ethers. The 1st 9 examples are the same as in the earlier patent. The next 2 examples illustrate the elimination of pour-point depressing action obtained by use of the additives. In a final example, 12 blends were made and subjected to storage-stability tests to show the viscosity-stabilizing effect of the compatibility improvers on blends contg. both detergent inhibitors of the alkylated phenol sulfide and petroleum sulfonate type and viscosity-index improvers.
IT Lubricants
(addn. agents for, polyalkylene ether compatibility improvers for)
IT Detonation
(in engines, lubricants contg. metal compds. of cyclopentadiene and derivs. in prevention of)
IT Ethers
(of glycols(polyalkylene), as lubricant-additive compatibility improvers)
IT 109-86-4, Ethanol, 2-methoxy- 111-90-0, Ethanol, 2-(2-ethoxyethoxy)-
(as lubricant-additive compatibility improver)
IT 102-54-5, **Iron, dicyclopentadienyl-**
(**fuels** contg.)

L2 ANSWER 22 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1959:47793 CAPLUS
DN 53:47793
OREF 53:8592f-h
ED Entered STN: 22 Apr 2001
TI Combustion catalysts for gaseous **fuels**
IN Pederson, Charles J.
PA E. I. du Pont de Nemours & Co.
DT Patent
LA Unavailable
CC 21 (Fuels and Coal Products)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2867516		19590106	US	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2867516		

AB Dicyclopentadienylirons act as combustion catalysts for gaseous **fuels**. They also prevent formation of free C. The iron compds. are preferably added as vapor and include dicyclopentadienyliron (I) (C.A. 50, 2663f),

h eb c g cg b cg eb

bis(methylcyclopentadienyl)iron (II), cyclopentadienyl(methylcyclopentadienyl)iron, cyclopentadienyl(ethylpentadienyl)iron, and similar lower-alkyl substitution derivs. For example, natural gas contg. propene 36, propane 26, and air 38% by vol. was burned at rate of 0.0806 g./min. with I vaporized at 60° at a rate of 0.000060 g./min. Smoke elimination was obtained with 0.075% I by wt. of gas. Smoke was also eliminated when 1 part II was vaporized per 500 parts hydrocarbon.

IT **Fuel** gas
Natural gas
(combustion of, Fe compd. catalysts for)

IT Combustion
(of gases, Fe compd. catalysts for)

IT 102-54-5, **Iron, dicyclopentadienyl-** 1271-44-9, Iron, cyclopentadienyl(methylcyclopentadienyl)- 1273-89-8, Iron, cyclopentadienyl(ethylcyclopentadienyl)- 1291-47-0, Iron, bis(methylcyclopentadienyl)-
(and analogs, as catalysts for combustion of gases)

IT 7439-89-6, Iron
(compounds, catalysts, for combustion of gases)

L2 ANSWER 23 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1958:108079 CAPLUS
DN 52:108079
OREF 52:19109e-f
ED Entered STN: 22 Apr 2001
TI **Fuel** for internal combustion engines
IN Pedersen, Charles J.
PA E. I. Du Pont de Nemours & Co.
DT Patent
LA Unavailable
NCL 46A-6; 7
CC 22 (Petroleum, Lubricants, and Asphalt)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI DE 935467		19551117	DE	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 935467	NCL	46A-6

AB The **fuel** contains 0.01-1.0% dicyclopentadienyliron (I) besides Et4Pb as an antiknock compd. I is prepd. by adding EtMgBr (made from 54 g. EtBr) in Et2O to 33 g. cyclopentadiene in 100 g. thiophene-free C6H6 at 15-20° during 15 min., followed by 28 g. water-free FeCl3 in 500 g. Et2O. After 18 hrs. at 20-5° the mixt. is refluxed for 1 hr. and 1000 g. 10% aq. NH4Cl is added at 15-20°. From the ether layer, 20 g. crude I is obtained, recrystn. from 90 g. petroleum ether giving 9.6 g. I (orange crystals, m. 173-4°, subliming at 100°). The principal absorption bands of I are at 0.439, 9.95, and 12.23 μ.

IT Detonation
(in engines, dicyclopentadiethyliron-Et4Pb compns. for prevention of)

IT **Fuels**
(internal-combustion, with antiknock additives of dicyclopentadienyliron and Et4Pb)

IT Infrared spectra
(of ferrocene)

IT 102-54-5, **Iron, dicyclopentadienyl-**
(**fuels** contg.)

L2 ANSWER 24 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

h eb c g cg b cg eb

AN 1958:108078 CAPLUS
DN 52:108078
OREF 52:19109d-e
ED Entered STN: 22 Apr 2001
TI Sweetening of sour distillates
IN Brown, Russell H.; Fairchild, Wm. P.; Kawahara, Fred. K.
PA Standard Oil Co.
DT Patent
LA Unavailable
CC 22 (Petroleum, Lubricants, and Asphalt)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 794295		19580430	GB	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
GB 794295		

AB The above process is effected with a granular catalyst contg. 35-45% H2O and 4-15% CuCl2 on fuller's earth or Attapulgus clay. It is carried out at 38-315° for thermally cracked virgin distillates but at >160° for high-S virgin distillates.
IT Fuller's earth
(catalysts from CuCl2 and, in sweetening of hydrocarbon oils)
IT Catalysts
(in hydrocarbon oil sweetening, CuCl2-attapulgite (or fuller's earth))
IT Hydrocarbon oils
(sweetening of, by CuCl2-Attapulgus clay or CuCl2-fuller's earth catalysts)
IT 7447-39-4, Copper chloride, CuCl2
(catalysts from Attapulgus clay or fuller's earth and, in sweetening of hydrocarbon oils)
IT 12174-11-7, Attapulgite
(catalysts from CuCl2 and, in sweetening of hydrocarbon oils)
IT 102-54-5, **Iron, dicyclopentadienyl-**
(**fuels** contg.)

L2 ANSWER 25 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1958:92903 CAPLUS
DN 52:92903
OREF 52:16366g-h
ED Entered STN: 22 Apr 2001
TI Ferrocene
IN Barusch, Maurice R.; Lindstrom, Eddie G.
PA California Research Corp.
DT Patent
LA Unavailable
CC 10G (Organic Chemistry: Heterocyclic Compounds)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2834796		19580513	US	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2834796		

AB Ferrocene, useful as a **gasoline** or oil additive, was prepared by allowing cyclopentadiene to react with anhydrous FeCl2 in the presence of Na, using EtOH as a solvent. Thus 0.5 mole Na was added over 2 hrs. to 200 cc. EtOH at reflux. After cooling 0.5 mole cyclopentadiene was added dropwise. Then 0.25 mole FeCl2 in 200 cc. anhydrous EtOH was added, and after 30 min. the mixt. was added to 600 cc. H2O and the resultant ppt.

h eb c g cg b cg eb

extd. with CHCl3 and the ext. evapd. to dryness to yield 20 g. cryst. ferrocene. A prepn. in pilot plant quantities is given.
IT 102-54-5, **Iron, dicyclopentadienyl-**
(manuf. of)

L2 ANSWER 26 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text | Citing References
AN 1957:58884 CAPLUS
DN 51:58884
OREF 51:10889f-g
ED Entered STN: 22 Apr 2001
TI Antidetonator
IN Moldavskii, B. L.; Blimova, M. V.
DT Patent
LA Unavailable
CC 22 (Petroleum, Lubricants, and Asphalt)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI SU 104937		19570225	SU	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
SU 104937		

AB Dicyclopentadienyliron is used as an antidetonator in **fuels** for internal combustion engines.
IT Detonation
(in engines, dicyclopentadienyliron in prevention of)
IT **Fuels**
(internal-combustion, antiknock, dicyclopentadienyliron-contg.)
IT 102-54-5, **Iron, dicyclopentadienyl-**
(as **fuel**-detonation inhibitor)

L2 ANSWER 27 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text | Citing References
AN 1957:58883 CAPLUS
DN 51:58883
OREF 51:10889e-f
ED Entered STN: 22 Apr 2001
TI Antistalling motor **fuel**
IN Duncan, Gordon W.; Lifson, Wm. E.; Haworth, Joseph P.
PA Esso Research and Engineering Co.
DT Patent
LA Unavailable
CC 22 (Petroleum, Lubricants, and Asphalt)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2784067		19570305	US	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2784067		

AB Morpholine in a concn. of 0.25% in aviation **gasoline**, having a 50% distn. point of 200°F. and a Reid pressure of 7, decreased carburetor icing and resultant stalling under humid conditions at 30-60°F. Dimethylformamide also was effective. Cf. U.S. 2,706,677 (C.A. 49, 9922b).
IT **Gasoline**
(with anti-icing antistalling additives of dimethylformamide or morpholine)
IT 102-54-5, **Iron, dicyclopentadienyl-**

h eb c g cg b cg eb

(as **fuel**-detonation inhibitor)
IT 68-12-2, Formamide, N,N-dimethyl-
(**gasoline** contg. anti-icing)
IT 110-91-8, Morpholine
(**gasoline** contg. anti-icing antistalling)

L2 ANSWER 28 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1957:57014 CAPLUS
DN 51:57014
OREF 51:10588b-d
ED Entered STN: 22 Apr 2001
TI Metal derivatives of cyclopentadiene
IN Clapp, Daniel B.
PA Associated Ethyl Co. Ltd.
DT Patent
LA Unavailable
CC 10 (Organic Chemistry)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI GB 763047		19561205	GB	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
GB 763047		

AB To dry C6H6 (1500 ml.) contg. 100 g. powd. K was added 275 ml. cyclopentadiene (I) in anhyd. C6H6 through a dropping funnel with stirring and cooling, after refluxing 1 hr. the mixt. allowed to cool to room temp., 180 g. anhyd. FeCl2 in 800 ml. anhyd. Et2O added with stirring, the mixt. refluxed 2 hrs., allowed to stand for several hrs. with occasional stirring, the solvent removed by distn., H2O added, and steam-distd., giving bis(cyclopentadienyl)iron (II), which filtered off and dried over concd. H2SO4 gave 50% yield of product. II was also prepd. by a similar procedure from Na in dry liquid paraffin and I, BuLi in dry liquid paraffin and I, and NaNH2 in liquid paraffin and I. II finds use as an antiknock additive.
IT **Fuels**
(internal-combustion, with antiknock additives of dicyclopentadienyliron)
IT 102-54-5, **Iron, dicyclopentadienyl-**
(manuf. of)
IT 542-92-7, Cyclopentadiene
(metal complexes)

L2 ANSWER 29 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1956:71623 CAPLUS
DN 50:71623
OREF 50:13417c-d
ED Entered STN: 22 Apr 2001
TI Dicyclopentadienyliron and its effects on combustion phenomena
AU Arimoto, F. S.; Corzilius, M. W.; Lamb, J. A.; Melby, A. O.
CS E. I. du Pont de Nemours & Co., Wilmington, DE
SO Am. Chem. Soc., Div. Petroleum Chem., General Papers (1955), No. 33, 267-75
DT Journal
LA Unavailable
CC 22 (Petroleum, Lubricants, and Asphalt)
AB Dicyclopentadienyl-iron has a hydrocarbonlike structure, high stability, high vapor pressure, and good soly. in hydrocarbons. It is approx. half as effective as PbEt4 and, when used in conjunction with it, raises the

h eb c g cg b cg eb

octane no. as much as 11 points. It reduces smoke and burner tip fouling in jet and domestic burners.

IT Combustion
(dicyclopentadienyliron effect on burner tip fouling and smoke production in **fuel**)

IT Smoke
(dicyclopentadienyliron in lessening **fuel** tendency to produce)

IT Burners
(fouling of tips in, dicyclopentadienyliron in decreasing)

IT **Fuels**
(internal-combustion, dicyclopentadienyliron effect on octane no., smoke production and burner-tip fouling of)

IT 102-54-5, **Iron, dicyclopentadienyl-**
(and its effect on combustion of **fuels** for motors)

L2 ANSWER 30 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1956:16049 CAPLUS
DN 50:16049
OREF 50:3260b-i,3261a-e
ED Entered STN: 22 Apr 2001
TI Hydrogen fluoride as a condensing agent. V. Reactions of dicyclopentadienyliron in anhydrous hydrogen fluoride
AU Weinmayr, Viktor
CS E. I. du Pont de Nemours & Co., Wilmington, DE
SO Journal of the American Chemical Society (1955), 77, 3009-11
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA Unavailable
CC 10 (Organic Chemistry)
AB cf. C.A. 50, 2507h. Dicyclopentadienyliron (I) shows some reactions typical of an aromatic system while others equally typical are not observed. Acylation and condensations with aliphatic and aromatic aldehydes occur readily, but alkylations do not take place. Of special interest is the ease with which I reacted to give cyclopentadienyl(cyclopentenyclyclopentadienyl)iron (II) under the influence of HF. The sulfonation of I yielded mono- and disulfonic acids. I, like many polynuclear compds., dissolves in HF to form an orange soln.; this soln. kept below 20° and dild. with H2O yielded unchanged I; in the presence of oxidizing agents such as air, PhNO2, or benzoquinone oxidation occurs; a blue soln. of the cation [Fe(C5H5)2] + showing red dichroism is formed and upon diln. with H2O a soln. showing a similar color phenomenon is obtained. Tech. HF (400 g.) distd. into a steel autoclave contg. 66 g. I under N, 46 g. SO2 was then distd. into the vessel, a N pressure of 7 atm. applied, and the mixt. heated during 3 hrs. to 100° maintained 3 hrs. at 100° dild. with H2O (blue soln.), and finally treated with 58 g. ascorbic acid gave 51 g. unchanged I. An identical charge, but in AcOH instead of HF, treated similarly in a Pt-lined autoclave, did not show any oxidation. Anthraquinone (10.4 g.) and 46.5 g. I in 300 g. HF agitated 24 hrs. in a Ni vessel, the mixt. dild. with H2O, the ppt. dried 24 hrs. at 60° and 20 mm., and the residue recrystd. gave 11 g. anthrone; the blue HF filtrate reduced with Zn dust gave 32g. I. I(30g.)in 120g. HF heated 3 hrs in a Ni vessel to 100° agitated 6 hrs. at 100° and poured into ice, the tarry ppt. which slowly changed into a yellow solid dissolved in C6H6 and distd. gave 1 g. I as a yellow sublimate; 16 g. II, b10 170-6°, m. 60-5°; and 6 g. residue. II (15 g.) recrystd. from 120 cc. EtOH gave 12 g. pure II, m. 64-5°; it dissolved in concd. H2SO4 with a brown color. The crystals of II, as well as C6H6 and alc. solns. were stable, but solns. in **gasoline** or isooctane deposited insol. products after several days. HF contg. about 2% SO2 gave a product contg. an impurity that gave off H2O and foamed badly during vacuum distn. The

h eb c g cg b cg eb

mother liquors of crystn. gave a very small amt. of an isomer of I, yellow solid, m. 140° which could not be hydrogenated; mol. wt. 251. A 2nd isomer, m. 188-90°, mol. wt. 356, was found in 1 run in the distn. residue from a batch of II. II (25 g.) in 100 cc. thiophene-free C6H6 hydrogenated at 60-70° over 0.01 g. PtO2 and the mixt. distd. gave 23 g. cyclopentadienyl (cyclopentylcyclopentadienyl)iron (III), red liquid, f.p. 16.3°. I (93 g.) in 800 cc. C6H6 agitated 24 hrs. at 25-30° under N with 500 g. HF in a steel autoclave, the charge dild. with ice, the C6H6 layer washed acid-free and evapd. on the steam bath during 24 hrs. to allow unreacted I to sublime away, the residual oil (34 g.) distd., and the distillate (14 g.), b12 245-55°, collected gave cyclopentylphenyldicyclopentadienyliron (IV). IV could be refluxed at atm. pressure at about 390° without decompn. and was sol. in concd. H2SO4 with a brown color which turned green after a short time. I (84 g.), 270 cc. Ac2O, and 400 g. HF agitated 12 hrs. at 40-5° the mixt. dild. with 3000 cc. H2O or more, and the resulting orange solid (89 g.) recrystd. from isooctane (1 g./14 cc.) gave acetylcyclopentadienyl(cyclopentadienyl)iron (IV), orange needles, m. 85-6°; it dissolved in concd. H2SO4 and in 36% HCl with red color. IV treated with iodine in pyridine at room temp. gave readily 50% carboxycyclopentadienyl(cyclopentadienyl)iron (V), needles, m. 225-30° (from **gasoline**, 1 g. in 120 cc.). V (20 g.) refluxed 20 hrs. with 150 cc. abs. EtOH, 45 g. C6H6, and 5 g. 37% HCl with the azeotropic removal of the H2O, the soln. evapd., the solid residue dissolved in Et2O, the soln. washed with dil. aq. NaOH, dried, and evapd. to dryness, and the residue recrystd. from Et2O gave 10 g. Et ester of V, orange crystals, m. 61-2°. I (93 g.) in 1000 cc. Ac2O treated during 1 hr. with stirring with 73 g. 100% H2SO4 while the temp. was allowed to rise to 46°, the mixt. kept a few hrs. at room temp., the cryst. deposit filtered on a sintered glass funnel and washed with Ac2O and petr. ether, the coarse, yellow crystals (100 g.) which absorbed moisture quickly in air dissolved in 800 cc. H2O, the soln. treated with 800 cc. 28% NH4OH and evapd. to dryness, the crude residue (85 g.) dissolved in 2200 cc. 95% EtOH, the soln. filtered, and the filtrate dild. with 1000 cc. C6H6 pptd. 50 g. pure di-NH4 salt (Va) of a disulfonic acid of I, bright yellow crystals; it dissolved in concd. H2SO4 with a yellow color which changed to green on standing; the Ac2O filtrate from the reaction product dild. with H2O and evapd. on the steam bath to near dryness gave 45 g. greenish yellow crystals, which could be readily recrystd. from glacial AcOH (30 cc./g.) in which it was sol. with a blue color (also in concd. H2SO4); it did not melt but decompd. with charring and analyzed approx. for C20H24Fe3O9S2. I (37 g.) in 200 cc. AcOH treated at 25-35° with 4.9 g. 100% H2SO4, the mixt. stirred overnight, the insol. solid filtered (15.8 g. I), the filtrate poured into 1000 cc. H2O and heated to 80° to deposit an addnl. 10 g. I, the dil. AcOH soln. evapd. to dryness on a steam bath, the residue slurried in excess NH4OH, filtered, and evapd. to dryness, and the residue (12 g.) dissolved in abs. MeOH, filtered, and again evapd. yielded 11 g. NH4 salt of a monosulfonic acid of I. I (20 g.) and 4.8 g. paraformaldehyde in 400 g. HF heated during 3 hrs. in a Ni vessel to 100°, the mixt. kept 3 hrs. at 100°, poured into ice, and filtered to remove 2.3 g. solid, the filtrate (showing red-blue dichroism) stirred 1 hr. with 100 g. Zn dust and filtered, the filter residue extd. with 500 cc. hot C6H6, the yellow C6H6 ext. evapd., and the residue (10.6 g.) recrystd. from high boiling petr. ether (5 cc./g.) gave a CH2O-I condensation product (VI), C22H20Fe2, m. 191°. VI dissolved in concd. H2SO4 with a green color; it could be distd. in an open tube without decompn. and without residue. A similar condensation using concd. H2SO4 instead of HF gave only tarry products. I (5 g.) and 4.3 g. BzH in 100 g. HF heated 3 hrs. to 100°, the mixt. poured into H2O and reduced with Zn dust, and the yellow cryst. product (4.7 g.) recrystd. from high boiling petr. ether gave the BzH-I condensation product, C34H28Fe2, yellow crystals, m. 260-5°. The ultraviolet and visible absorption max. of I, II, III, IV, V, Va, and VI are tabulated.

h eb c g cg b cg eb

IT Condensation, chemical
(hydrofluoric acid as agent for)
IT Spectra
(of dicyclopentadienyliron and derivs.)
IT Cyclopentadienesulfonic acid, cyclopentadienyliron deriv.
Ketone, cyclopentadienyl methyl, cyclopentadienyliron deriv.
IT 7664-39-3, Hydrofluoric acid
(as condensing agent)
IT 1271-42-7, Cyclopentadienecarboxylic acid, cyclo-pentadienyliron deriv.
1271-55-2, Iron, (acetylcyclopentadienyl)cyclopentadienyl- 1273-91-2, Iron, (carboxycyclopentadienyl)cyclopentadienyl-, ethyl ester
12260-67-2, Iron, cyclopentadienyl(cyclopentenylcyclopentadienyl)-
32218-90-9, Iron, cyclopentadienyl(sulfocyclopentadienyl)- 34962-35-1, Iron, cyclopentadienyl(sulfocyclopentadienyl)-, ammonium salt
52201-63-5, Iron, cyclopentadienyl(cyclopentylcyclopentadienyl)-
(prepn. of)
IT 50-00-0, Formaldehyde
(reaction products of, with dicyclopentadienyliron)
IT 100-52-7, Benzaldehyde
(reaction products with dicyclopentadienyliron)
IT 102-54-5, **Iron, dicyclopentadienyl-**
(reactions in presence of HF, and derivs.)

L2 ANSWER 31 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 1956:16048 CAPLUS
DN 50:16048
OREF 50:3259c-i,3260a-b
ED Entered STN: 22 Apr 2001
TI The condensation of dicyclopentadienyliron with aromatic diazonium salts
AU Weinmayr, Viktor
CS E. I. du Pont de Nemours & Co., Wilmington, DE
SO Journal of the American Chemical Society (1955), 77, 3012-14
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA Unavailable
CC 10 (Organic Chemistry)
AB Dicyclopentadienyliron (I) in its cationic form [FeEt2] + reacts with aromatic diazonium salts to give aryl-substituted derivs. of I. I (100 g.) added to 500 g. 96% H2SO4 while allowing the temp. to rise to 50°, the resulting blue soln. (SO2 is evolved) kept at room temp. overnight, poured into ice and H2O, and treated at room temp. with a soln. of 64 g. p-ClC6H4NH2 diazotized in 500 cc. 20% H2SO4 at 0-5° the mixt. stirred until all diazonium salt had reacted, the resulting light brown ppt. filtered, the crude product (65 g.) extd. with 1000 cc. C6H6, the ext. evapd., and the residue recrystd. from high boiling petr. ether gave di-(p-chlorophenyl)dicyclopentadienyliron (II), m. 192°; it dissolved in concd. H2SO4 with a brown color; the dil. H2SO4 filtrate from the crude II treated with ascorbic acid gave a mixt. of unreacted I and cyclopentadienyl(p-chlorophenylcyclopentadienyl)iron (III); the mixt. sublimed to remove the I and the residue recrystd. from 90% AcOH gave pure III, yellow crystals, m. 122°; it dissolved in 96% H2SO4 with a green color showing yellow fluorescence. 1,2,3,4-Tetraphenylcyclopentadiene (18.5 g.), m. 178°, added to NaNH2 (from 2.3 g. Na) in 100 g. liquid NH3 contg. 0.2 g. Fe(NO3)3, the mixt. treated after about 1 hr. with 15 g. FeCl2 (prepd. by heating anhyd. FeCl3 in PHCl) and dild. with 100 cc. xylene, the NH3 evapd., the residue agitated at room temp. overnight and filtered, the filter residue extd. with hot xylene, and the ext. evapd. gave 8.8 g. bis(tetraphenylcyclopentadienyl)iron, deep red crystals, m. 322° (from 50 cc. PhCl).
Cyclopentadienyl Na (prepd. from 33 g. cyclopentadiene in a similar manner) in liquid NH3 treated with 59 g. p-C6H4Br2 and 300 cc. xylene at the b.p. of the NH3, the NH3 evapd. overnight, the residue treated with

h eb c g cg b cg eb

500 g. liquid NH3 and 11.5 g. Na, the mixt. treated after 1 hr. with 45 g. FeCl2, kept several days at room temp., and evapd., and the residue distd. gave 10 g. dicyclopentadiene, and 15 g. distillate, b33 230-40° which crystd. from EtOH gave cyclopentadienyl (phenylcyclopentadienyl)iron (IV). A series of coupling reactions was carried out with various diazotized aromatic amines (amine, reaction product(s), % yield, m.p., color of crystals, and color in 96% H2SO4 given): PhNH2, IV, 17, 110-11° (from 80% AcOH, 9 g. in 300 cc.), yellow, green; diphenyldicyclopentadienyliron (V), 20, 140-4° (from glacial AcOH, 3 g. in 50 cc.), yellow-brown, brown; p-H2NC6H4Ph, tri-(p-diphenyl)dicyclopentadienyliron (VI), 50, 135-40° (from BuOH, 30 g. in 700 cc.), brown, brown; p-O2NC6H4NH2, cyclopentadienyl(p-nitrophenylcyclopentadienyl)iron (VII), 10, 163° (from high boiling **gasoline**, 8 g. in 100 cc.), dark purple, yellow; di-(p-nitrophenyl)dicyclopentadienyliron, 60, above 300° (from pyridine, 20 g. in 100 cc.), dark purple, brown; o-H2NC6H4CO2H, di(o-carboxyphenyl)dicyclopentadienyliron, 15, 195° (from glacial AcOH, 18 g. in 50 cc.), pale yellow, green changing to red; mixt. of tri- and tetra-(o-carboxyphenyl)dicyclopentadienyliron, 35, 134-40° (from dil. NH4OH with HCl), pale-brown solid, brown; 1-amino-8-naphthoic acid, (8-carboxy-1-naphthylcyclopentadienyl)(cyclopentadienyl)iron, 6, 220° (from glacial AcOH, 7 g. in 100 cc.), orange, green changing to red; tri-(8-carboxy-1-naphthyl)dicyclopentadienyliron, 30, above 300° (decompn.) (from dil. NH4OH with AcOH), brown solid, brown changing to olive; p-H2NC6H4OH cyclopentadienyl-(p-hydroxyphenylcyclopentadienyl)iron (VIII), 60, 165° (from high boiling **gasoline**, 3 g. in 250 cc.), yellow, yellow with green fluorescence [a poly-(p-hydroxyphenyl) dicyclopentadienyliron also was obtained but could not be sepd. from a S-contg. impurity. The ultraviolet and visible absorption max. of I in MeOH and of II, III, IV, V, VI, VII, and VIII in EtOH are tabulated.

IT Spectra
(of dicyclopentadienyliron phenyl derivs.)

IT Condensation, chemical
(of dicyclopentadienyliron with aromatic diazonium compds.)

IT Diazonium compounds
(reactions of, with dicyclopentadienyliron)

IT 1-Naphthoic acid, 8-cyclopentadienyl-, cyclopentadienyliron deriv.
Cyclopentadiene, 1,2,3,4-tetraphenyl-, iron deriv.
Iron, [(8-carboxy-1-naphthyl)cyclopentadienyl]cyclopentadienyl-
Phenol, p-cyclopentadienyl-, cyclopentadienyliron deriv.

IT Biphenyldiazonium, 4-
Naphthalenediazonium, 8-carboxy-1-
(salts, reaction with dicyclopentadienyliron)

IT 15518-68-0, Benzenediazonium, 4-benzamido-2,5-diethoxy-
(-salts, reaction with dicyclopentadienyliron)

IT 102-54-5, **Iron, dicyclopentadienyl-**
(condensation with diazonium compds., and derivs.)

IT 542-92-7, Cyclopentadiene
(iron derivs.)

IT 1287-25-8, Iron, cyclopentadienyl(phenylcyclopentadienyl)- 12091-55-3, Iron, [(p-chlorophenyl)cyclopentadienyl]cyclopentadienyl- 12091-58-6, Iron, cyclopentadienyl[(p-nitrophenyl)cyclopentadienyl]- 12151-36-9, Iron, bis(tetraphenylcyclopentadienyl)- 32994-52-8, Iron, cyclopentadienyl[(p-hydroxyphenyl)cyclopentadienyl]-
(prepn. of)

IT 14368-49-1, Benzenediazonium, p-nitro-
(reaction with dicyclopentadienyliron)

IT 17333-85-6, Benzenediazonium, p-chloro- 17333-86-7, Benzenediazonium, o-carboxy- 19089-85-1, Benzenediazonium, p-hydroxy-
(salts, reaction with dicyclopentadienyliron)

L2 ANSWER 32 OF 32 CAPLUS COPYRIGHT 2004 ACS on STN

h eb c g cg b cg eb

Full Text | Citing References

AN 1955:84424 CAPLUS
DN 49:84424
OREF 49:15955a-c
ED Entered STN: 22 Apr 2001
TI Condensation products of dicyclopentadienyliron and aldehydes
IN Weinmayr, Viktor
PA E. I. du Pont de Nemours & Co.
DT Patent
LA Unavailable
CC 10 (Organic Chemistry)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2694721		19541116	US	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2694721		

AB Dicyclopentadienyliron (I) with aldehydes in the presence of HF gives water-sol. intermediates, convertible by metal-acid reducing agents to water-insol. products, useful as **gasoline** antiknock additives. Thus, sealing 5 g. I, 1.2 g. paraformaldehyde, and 100 g. HF in a Ni bomb at 0°, warming to 100° in 3 hrs., heating 3 hrs. at 100°, pouring into 1 l. H2O, filtering, and reducing the blue filtrate with 65 g. Zn dust gives 3.4 g. of the condensation product, C22H20Fe2 (II), m. 175-8°, after filtering and extg. the collected solids with 500 g. hot C6H6, drying the exts. over CaCl2, and concg. to dryness; 2 recrystns. from ligroine (b. 110-20°) give 2.5 g. II, m. 191-2°. II, in a mineral-oil mull, gives characteristic bands at 9.05, 9.80, 10.03, and 12.22 μ. A similar compd., C34H28Fe2 (III), m. 265-8°, is obtained in like manner from I, BzH, and HF; III shows absorption bands at 9.02, 9.78, 12.33, and 14.11 μ.

IT **Gasoline**
(antiknock properties of, dicyclopentadienyliron derivs. for improvement of)
IT Spectra
(of dicyclopentadienyliron derivs.)
IT Aldehydes
(reaction products of, with dicyclopentadienyliron)
IT 542-92-7, Cyclopentadiene
(iron derivs.)
IT 102-54-5, **Iron, dicyclopentadienyl-**
(reaction products with aldehydes)
IT 100-52-7, Benzaldehyde 30525-89-4, Paraformaldehyde
(reaction products with dicyclopentadienyliron)

=> **file stnguide**

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	107.40	107.61

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-22.40	-22.40

FILE 'STNGUIDE' ENTERED AT 18:06:51 ON 22 SEP 2004

FILE CONTAINS CURRENT INFORMATION.

h eb c g cg b cg eb

LAST RELOADED: Sep 17, 2004 (20040917/UP).

=>

IT 542-92-7, Cyclopentadiene
(iron derivs.)
IT 102-54-5, **Iron, dicyclopentadienyl-**
(reaction products with aldehydes)
IT 100-52-7, Benzaldehyde 30525-89-4, Paraformaldehyde
(reaction products with dicyclopentadienyliron)

=> file stnguide

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	107.40	107.61

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-22.40	-22.40

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AND TECHNOLOGY CORPORATION, AND FACHINFORMATIONSZENTRUM KARLSRUHE

FILE CONTAINS CURRENT INFORMATION.
LAST RELOADED: Sep 17, 2004 (20040917/UP).

=> s (cerium or manganese or platinum) and (fuel and gasoline or gasolene or diesel or petro)

0	CERIUM
0	MANGANESE
0	PLATINUM
11	FUEL
47	FUELS
48	FUEL (FUEL OR FUELS)
0	GASOLINE
0	GASOLENE
0	DIESEL
0	PETRO
L3 0	(CERIUM OR MANGANESE OR PLATINUM) AND (FUEL AND GASOLINE OR GASOLENE OR DIESEL OR PETRO)

=> file caplus

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.36	107.97

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	0.00	-22.40

FILE 'CAPLUS' ENTERED AT 18:10:27 ON 22 SEP 2004
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strictly prohibited.

FILE COVERS 1907 - 22 Sep 2004 VOL 141 ISS 13
FILE LAST UPDATED: 21 Sep 2004 (20040921/ED)

This file contains CAS Registry Numbers for easy and accurate
substance identification.

```
=> s (cerium or manganese or platinum) and (fuel and gasoline or gasolene or diesel or petro)
         92516 CERIUM
             3 CERIUMS
         92516 CERIUM
                 (CERIUM OR CERIUMS)
        325565 MANGANESE
           105 MANGANESES
        325575 MANGANESE
                 (MANGANESE OR MANGANESES)
        182863 PLATINUM
            57 PLATINUMS
        182876 PLATINUM
                 (PLATINUM OR PLATINUMS)
        338807 FUEL
        154521 FUELS
        387594 FUEL
                 (FUEL OR FUELS)
         65477 GASOLINE
          5334 GASOLINES
         65896 GASOLINE
                 (GASOLINE OR GASOLINES)
           101 GASOLENE
         40636 DIESEL
           421 DIESELS
         40685 DIESEL
                 (DIESEL OR DIESELS)
           463 PETRO
            13 PETROS
           476 PETRO
                 (PETRO OR PETROS)
L4        2577 (CERIUM OR MANGANESE OR PLATINUM) AND (FUEL AND GASOLINE OR
               GASOLENE OR DIESEL OR PETRO)

=> s l4 and organometallic
         41402 ORGANOMETALLIC
          2664 ORGANOMETALLICS
         42527 ORGANOMETALLIC
                 (ORGANOMETALLIC OR ORGANOMETALLICS)
L5          38 L4 AND ORGANOMETALLIC

=> s l5 not l2
L6          37 L5 NOT L2

=> d l6 1-37 all

L6   ANSWER 1 OF 37  CAPLUS  COPYRIGHT 2004 ACS on STN
Full Text
AN   2004:510240  CAPLUS
DN   141:25986
ED   Entered STN:  24 Jun 2004
TI   Manganese compounds as corrosion inhibitors for inhibition of
     fuel-borne corrosion in utility boilers and furnace firing systems
```

IN Aradi, Allen A.; Adams, Michael Wayne; Factor, Stephen Alan
PA Ethyl Corporation, USA
SO Eur. Pat. Appl., 11 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM C10G075-02
CC 51-18 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 59
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1431372	A2	20040623	EP 2003-22906	20031009
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	US 2004118032	A1	20040624	US 2002-322158	20021218
	JP 2004198099	A2	20040715	JP 2003-320114	20030911
PRAI	US 2002-322158	A	20021218		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
EP 1431372	ICM	C10G075-02
EP 1431372	ECLA	C10G075/02
US 2004118032	ECLA	C10G075/02
JP 2004198099	FTERM	3K065/TA04; 3K065/TA08; 3K065/TB05; 3K065/TC03; 3K065/TC04; 3K065/TC05; 3K065/TC07; 3K065/TC10; 3K065/TD04; 3K065/TD05; 3K065/TD06; 3K065/TD10; 3K065/TK01; 3K065/TK04; 3K065/TK05; 3K065/TL07; 3K068/AA01; 3K068/AA14; 3K068/AA16; 3K068/AB06; 3K068/AB07; 3K068/AB36; 3K068/EA02; 3K068/EA03

AB Low-temp. corrosion (i.e., at >250°) is prevented and inhibited in atm. combustion units and burners by adding a **manganese** compd. or deriv. In particular, **fuel**-borne **organometallic** emissions, esp. the formation of vanadates and other complex metal oxides in fly ash, are inhibited by addn. of a **manganese** compd., which combine with the metal contaminant in the **fuel** to reduce the amt. of metal oxide in the fly ash. In addn., Fe2O3-contg. metal surfaces are passivated, SO2 oxidn. to SO3 is inhibited, and the carbon content in the fly ash are all reduced by the presence of the **manganese** compd. The system may further include a catalyst package composed of one or more individual **organometallic** compds. of Li, Na, K, Mg, Ca, Sr, Ba, Mo, Fe, Co, Pt, Ce, and combinations, mixts. or precursors. Thus, the **manganese** compd. inhibits both high- and low-temp. corrosion that occurs on the hot surfaces of burner furnace walls and tubes, and on cooler surfaces of the burner unit exhaust stack.

ST corrosion inhibitor furnace firing **manganese** additive; **fuel** oil additive anticorrosion **manganese**; surface passivation furnace firing **manganese** additive; fly ash metal corrosion inhibition furnace firing

IT Jet aircraft **fuel**
(additives, corrosion inhibitors for; **manganese** compds. as corrosion inhibitors for inhibition of **fuel**-borne corrosion in utility boilers and furnace firing systems)

IT Fouling
(control; **manganese** compds. as corrosion inhibitors for inhibition of **fuel**-borne corrosion in utility boilers and furnace firing systems)

IT **Diesel fuel** additives
(corrosion inhibitors; **manganese** compds. as corrosion inhibitors for inhibition of **fuel**-borne corrosion in utility boilers and furnace firing systems)

IT Furnace firing
(corrosion prevention in; **manganese** compds. as corrosion

inhibitors for inhibition of **fuel**-borne corrosion in utility boilers and furnace firing systems)

IT **Fuel** oil additives
Gasoline additives
(deposit inhibitors, corrosion inhibitors; **manganese** compds. as corrosion inhibitors for inhibition of **fuel**-borne corrosion in utility boilers and furnace firing systems)

IT Ashes (residues)
(fly, from solid **fuels**; metal, carbon, and sulfur contents in; **manganese** compds. as corrosion inhibitors for inhibition of **fuel**-borne corrosion in utility boilers and furnace firing systems)

IT Burners
Incinerators
(fouling control in; **manganese** compds. as corrosion inhibitors for inhibition of **fuel**-borne corrosion in utility boilers and furnace firing systems)

IT Coal liquids
Forest litter
Vegetable materials
Wood waste
(**fuels**, corrosion inhibitors for; **manganese** compds. as corrosion inhibitors for inhibition of **fuel**-borne corrosion in utility boilers and furnace firing systems)

IT Alcohols, uses
Coal, uses
Coal dust
Ethers, uses
Kerosene
Natural gas, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**fuels**, corrosion inhibitors for; **manganese** compds. as corrosion inhibitors for inhibition of **fuel**-borne corrosion in utility boilers and furnace firing systems)

IT Petroleum products
(gases, liquefied, **fuels**, corrosion inhibitors for; **manganese** compds. as corrosion inhibitors for inhibition of **fuel**-borne corrosion in utility boilers and furnace firing systems)

IT Corrosion prevention
Passivation
(in combustion systems; **manganese** compds. as corrosion inhibitors for inhibition of **fuel**-borne corrosion in utility boilers and furnace firing systems)

IT Carboxylic acids, uses
Sulfonic acids, uses
RL: CPS (Chemical process); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**manganese** salts, **fuel** additive; **manganese** compds. as corrosion inhibitors for inhibition of **fuel**-borne corrosion in utility boilers and furnace firing systems)

IT Boilers
(utility, fouling control in; **manganese** compds. as corrosion inhibitors for inhibition of **fuel**-borne corrosion in utility boilers and furnace firing systems)

IT Sawdust
(waste, **fuels**, corrosion inhibitors for; **manganese** compds. as corrosion inhibitors for inhibition of **fuel**-borne corrosion in utility boilers and furnace firing systems)

IT 108-95-2D, Phenol, alkyl derivs., **manganese** salts 12079-65-1, Cyclopentadienylmanganese tricarbonyl 12079-65-1D, Cyclopentadienylmanganese tricarbonyl, alkyl derivs. 12108-13-3,

Methylcyclopentadienylmanganese tricarbonyl 73138-26-8, Manganocene
RL: CPS (Chemical process); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**fuel** additive; **manganese** compds. as corrosion inhibitors for inhibition of **fuel**-borne corrosion in utility boilers and furnace firing systems)

IT 74-98-6, Propane, uses 106-97-8, Butane, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**fuels**, corrosion inhibitors for; **manganese** compds. as corrosion inhibitors for inhibition of **fuel**-borne corrosion in utility boilers and furnace firing systems)

IT 7439-89-6D, Iron, compds. 7439-93-2D, Lithium, compds. 7439-95-4D, Magnesium, compds. 7439-98-7D, Molybdenum, compds. 7440-06-4D, **Platinum**, compds. 7440-09-7D, Potassium, compds. 7440-23-5D, Sodium, compds. 7440-24-6D, Strontium, compds. 7440-39-3D, Barium, compds. 7440-45-1D, **Cerium**, compds. 7440-48-4, Cobalt, processes 7440-62-2D, Vanadium, compds. 7440-70-2D, Calcium, compds. 7704-34-9D, Sulfur, compds. 7723-14-0D, Phosphorus, compds.
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(in fly ash, control of; **manganese** compds. as corrosion inhibitors for inhibition of **fuel**-borne corrosion in utility boilers and furnace firing systems)

IT 69-72-7D, Salicylic acid, derivs., **manganese** salts
RL: CPS (Chemical process); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(overbased, **fuel** additive; **manganese** compds. as corrosion inhibitors for inhibition of **fuel**-borne corrosion in utility boilers and furnace firing systems)

L6 ANSWER 2 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 2004:326208 CAPLUS
DN 140:323943
ED Entered STN: 22 Apr 2004
TI **Manganese** salts and organic complexes as **fuel** additives for enhanced post-combustion exhaust gas treatment
IN Guinther, Gregory H.
PA Ethyl Corporation, USA
SO Eur. Pat. Appl., 16 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM C10L001-30
ICS C10L001-12; C10L001-18; C10L001-24; C10L001-26; C10L010-06; C10L010-02; B01D053-94; F01N003-029; F01N003-20
CC 51-12 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 59
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1411108	A1	20040421	EP 2003-21162	20030923
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	US 2004074140	A1	20040422	US 2002-272566	20021016
	JP 2004138049	A2	20040513	JP 2003-315841	20030908
PRAI	US 2002-272566	A	20021016		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
EP 1411108	ICM	C10L001-30
	ICS	C10L001-12; C10L001-18; C10L001-24; C10L001-26;

C10L010-06; C10L010-02; B01D053-94; F01N003-029; F01N003-20

EP 1411108 ECLA C10L001/12; C10L001/18A8; C10L001/18D; C10L001/18T; C10L001/24C1; C10L001/26B1; C10L001/30A; C10L001/30B; C10L010/06

JP 2004138049 FTERM 3G090/AA01; 3G090/AA02; 3G090/AA03; 3G090/BA01; 3G091/AA02; 3G091/AA18; 3G091/AA20; 3G091/AA21; 3G091/AB03; 3G091/AB05; 3G091/AB09; 3G091/AB13; 3G091/AB15; 3G091/GA06; 3G091/GB01W; 4D048/AA06; 4D048/AA14; 4D048/AB01; 4D048/BA28X; 4D048/BB20; 4D048/BC01; 4D048/BC02; 4D048/BC03; 4D048/BC10; 4D048/CC41; 4D048/EA04; 4D048/EA10; 4D058/MA44; 4D058/SA08; 4D058/TA01; 4D058/TA06; 4G069/AA15; 4G069/BC62A; 4G069/BC62B; 4G069/CA02; 4G069/CA03; 4G069/CA07; 4G069/CA13; 4G069/CA18; 4G069/DA06; 4G069/ED07; 4G069/FB77; 4H013/CA03; 4H013/CA04; 4H013/CA05; 4H013/CA06; 4H013/CA07; 4H013/CJ01; 4H013/CJ02; 4H013/CJ03; 4H013/CJ05; 4H013/CJ06; 4H013/CJ11

AB Post-combustion exhaust gas treatment processes are improved by adding a **manganese** compd. to the **fuel** and burning the **fuel-manganese** additive mixt., such that the **manganese** compd. forms a complex with at least one combustion product, the treatment (or removal) of which is enhanced in the post-combustion gas treatment. The combustion system may include a catalyzed or continuously regenerating technol., such as a **diesel** particulate filter, optionally with a lean-NOx storage capacity. The preferred **fuel** is a low-sulfur (<30 ppm S) **diesel**, biodiesel, or synthetic **diesel fuel**. The **manganese** compd. can be an inorg. compd. or an **organometallic** compd., specifically alkylcyclopentadienylmanganese carbonyls.

ST **diesel fuel manganese** carbonyl additive exhaust gas treatment; cyclopentadienylmanganese carbonyl **diesel fuel** additive exhaust gas treatment; solid waste **manganese** combustion improver exhaust gas treatment

IT Wastes
(agricultural, combustion of, flue gas treatment in; **manganese** salts and org. complexes as **fuel** additives for enhanced post-combustion exhaust gas treatment)

IT **Diesel fuel** substitutes
(biodiesel, additives for; **manganese** salts and org. complexes as **fuel** additives for enhanced post-combustion exhaust gas treatment)

IT Wood
(chips, combustion of, flue gas treatment in; **manganese** salts and org. complexes as **fuel** additives for enhanced post-combustion exhaust gas treatment)

IT Hazardous wastes
Petroleum refining residues
Sawdust
Solid wastes
(combustion of, flue gas treatment in; **manganese** salts and org. complexes as **fuel** additives for enhanced post-combustion exhaust gas treatment)

IT Coal dust
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(combustion of, flue gas treatment in; **manganese** salts and org. complexes as **fuel** additives for enhanced post-combustion exhaust gas treatment)

IT Exhaust gas catalytic converters
(**diesel**; **manganese** salts and org. complexes as **fuel** additives for enhanced post-combustion exhaust gas treatment)

IT Chelating agents
(**manganese** complexes; **manganese** salts and org. complexes as **fuel** additives for enhanced post-combustion exhaust gas treatment)
IT Alcohols, uses
Aldehydes, uses
Amides, uses
Anhydrides
Crown ethers
Esters, uses
Ketones, uses
Phenols, uses
RL: CAT (Catalyst use); CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**manganese** complexes; **manganese** salts and org. complexes as **fuel** additives for enhanced post-combustion exhaust gas treatment)
IT Transition metal halides
RL: CAT (Catalyst use); CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**manganese** halides, **fuel** additives; **manganese** salts and org. complexes as **fuel** additives for enhanced post-combustion exhaust gas treatment)
IT **Diesel fuel** additives
Gasoline additives
(**manganese** salts and org. complexes as **fuel** additives for enhanced post-combustion exhaust gas treatment)
IT Carboxylic acids, uses
Sulfonic acids, uses
RL: CAT (Catalyst use); CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**manganese** salts; **manganese** salts and org. complexes as **fuel** additives for enhanced post-combustion exhaust gas treatment)
IT **Diesel fuel** substitutes
(synthetic, additives for; **manganese** salts and org. complexes as **fuel** additives for enhanced post-combustion exhaust gas treatment)
IT 12079-65-1, Cyclopentadienylmanganese tricarbonyl 12108-13-3, Methylcyclopentadienylmanganese tricarbonyl 12109-12-5 12109-77-2, tert-Butylcyclopentadienylmanganese tricarbonyl 12116-56-2, Ethylcyclopentadienylmanganese tricarbonyl 12203-32-6, Ethylmethylcyclopentadienylmanganese tricarbonyl 12203-33-7 12203-44-0 12276-61-8, Diethylcyclopentadienylmanganese tricarbonyl 33057-46-4, (Isopropylcyclopentadienyl)**manganese** tricarbonyl 34807-89-1, Pentamethylcyclopentadienylmanganese tricarbonyl 50497-43-3 66288-64-0, Trimethylcyclopentadienylmanganese tricarbonyl 104215-32-9 195381-04-5
RL: CAT (Catalyst use); CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(additive; **manganese** salts and org. complexes as **fuel** additives for enhanced post-combustion exhaust gas treatment)
IT 11104-93-1, Nitrogen oxide (NOx), formation (nonpreparative)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(emissions; **manganese** salts and org. complexes as **fuel** additives for enhanced post-combustion exhaust gas treatment)
IT 463-79-6D, Carbonic acid, **manganese** salts 7439-96-5D, **Manganese**, complexes 7664-38-2D, Phosphoric acid, **manganese** salts 7664-93-9D, Sulfuric acid, **manganese** salts 7697-37-2D, Nitric acid, **manganese** salts 7773-01-5, **Manganese** chloride 7790-33-2, **Manganese** iodide

11113-71-6, **Manganese** fluoride 11129-60-5, **Manganese** oxide 12626-88-9, **Manganese** hydroxide 12646-17-2, **Manganese** nitride 13446-03-2, **Manganese** bromide 57571-85-4, **Manganese** hydride
RL: CAT (Catalyst use); CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**fuel** additives; **manganese** salts and org. complexes as **fuel** additives for enhanced post-combustion exhaust gas treatment)

IT 123-54-6D, Acetylacetone, **manganese** complexes
RL: CAT (Catalyst use); CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**manganese** salts and org. complexes as **fuel** additives for enhanced post-combustion exhaust gas treatment)

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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(2) Davis, R; US 4674447 A 1987
(3) Dorer, C; US 4664677 A 1987 CAPLUS
(4) Ethyl Corp; EP 1215272 A 2002 CAPLUS
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(6) Niebylski, L; US 3948618 A 1976 CAPLUS
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(10) Roos, J; US 2003226312 A1 2003
(11) Simon, G; US 4568357 A 1986 CAPLUS
(12) Sinha, R; US 5487762 A 1996 CAPLUS
(13) Sparol Int Aps; WO 8607602 A 1986 CAPLUS
(14) Stoldt, S; US 4035530 A 1977 CAPLUS

L6 ANSWER 3 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text

AN 2004:310717 CAPLUS
DN 140:324223
ED Entered STN: 16 Apr 2004
TI Direct hydrogen peroxide **fuel** cell utilizing proton-donating **fuel**
IN Rusek, John; Prater, Daniel
PA USA
SO U.S. Pat. Appl. Publ., 8 pp.
CODEN: USXXCO
DT Patent
LA English
IC ICM H01M008-10
ICS H01M004-90; H01M004-92
NCL 429030000; 429033000; 429043000; 429042000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2004072044	A1	20040415	US 2002-269046	20021011
PRAI US 2002-269046		20021011		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2004072044	ICM	H01M008-10
	ICS	H01M004-90; H01M004-92
	NCL	429030000; 429033000; 429043000; 429042000

AB A direct hydrogen peroxide/proton-donating-**fuel** **fuel** cell for prodn. of elec. current by redn. of hydrogen peroxide coupled with oxidn. of **fuel** by means of ion transfer across an ion-conducting polymer electrolyte is provided. In addn., a hydrogen peroxide concn. meter is

provided, which may be utilized, for example, for measuring the concn. of hydrogen peroxide in solns. that may contain strong electrolytes or in automated systems such as those to be used with the present **fuel** cell.

ST hydrogen peroxide **fuel** cell use proton donating **fuel**

IT **Fuel** cells
(direct hydrogen peroxide **fuel** cell utilizing proton-donating **fuel**)

IT Enzymes, uses
RL: CAT (Catalyst use); USES (Uses)
(direct hydrogen peroxide **fuel** cell utilizing proton-donating **fuel**)

IT Metals, uses
RL: DEV (Device component use); USES (Uses)
(direct hydrogen peroxide **fuel** cell utilizing proton-donating **fuel**)

IT Chelates
RL: TEM (Technical or engineered material use); USES (Uses)
(direct hydrogen peroxide **fuel** cell utilizing proton-donating **fuel**)

IT **Gasoline**
RL: TEM (Technical or engineered material use); USES (Uses)
(direct hydrogen peroxide **fuel** cell utilizing proton-donating **fuel**)

IT Kerosene
RL: TEM (Technical or engineered material use); USES (Uses)
(direct hydrogen peroxide **fuel** cell utilizing proton-donating **fuel**)

IT Metalloporphyrins
RL: TEM (Technical or engineered material use); USES (Uses)
(direct hydrogen peroxide **fuel** cell utilizing proton-donating **fuel**)

IT **Organometallic** compounds
RL: TEM (Technical or engineered material use); USES (Uses)
(direct hydrogen peroxide **fuel** cell utilizing proton-donating **fuel**)

IT Catalysts
(electrocatalysts; direct hydrogen peroxide **fuel** cell utilizing proton-donating **fuel**)

IT Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(fluorine- and sulfo-contg., ionomers; direct hydrogen peroxide **fuel** cell utilizing proton-donating **fuel**)

IT Fluoropolymers, uses
RL: DEV (Device component use); USES (Uses)
(polyoxyalkylene-, sulfo-contg., ionomers; direct hydrogen peroxide **fuel** cell utilizing proton-donating **fuel**)

IT Ionomers
RL: DEV (Device component use); USES (Uses)
(polyoxyalkylenes, fluorine- and sulfo-contg.; direct hydrogen peroxide **fuel** cell utilizing proton-donating **fuel**)

IT 67-56-1, Methanol, uses 74-82-8, Methane, uses 7439-88-5, Iridium, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, **Platinum**, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7722-84-1, Hydrogen peroxide, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(direct hydrogen peroxide **fuel** cell utilizing proton-donating **fuel**)

IT 7440-44-0, Carbon, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(fritted, substrate; direct hydrogen peroxide **fuel** cell utilizing proton-donating **fuel**)

L6 ANSWER 4 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 2003:971100 CAPLUS
DN 140:6923
ED Entered STN: 12 Dec 2003
TI Water-soluble metal compound additives for scavenging of sulfur oxides in combustion of hydrocarbon **fuels**
IN Roos, Joseph W.; Cunningham, Lawrence Joseph; Guinther, Gregory H.
PA USA
SO U.S. Pat. Appl. Publ., 10 pp.
CODEN: USXXCO
DT Patent
LA English
IC ICM C10L001-10
ICS C10L005-00; C10L001-32
NCL 044280000; 044301000; 044302000; 044500000; 044605000; 044606000
CC 51-7 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 59
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003226312	A1	20031211	US 2002-165462	20020607
	EP 1378560	A2	20040107	EP 2003-12742	20030604
	EP 1378560	A3	20040114		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	CN 1467267	A	20040114	CN 2003-138689	20030609
PRAI	US 2002-165462	A	20020607		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2003226312	ICM	C10L001-10
	ICS	C10L005-00; C10L001-32
	NCL	044280000; 044301000; 044302000; 044500000; 044605000; 044606000
EP 1378560	ECLA	C10L001/10; C10L010/02; C10L010/06; F01N003/021; F01N003/023; F01N003/20D; F01N003/28; F02M025/02B; F23K

AB **Gasoline** and **diesel fuel** additives for scavenging exhaust gas components, notably sulfur oxides, for pollutant redn. prior to entering the exhaust gas treatment system, consist of urea and one or more water-sol. metal compds. selected from Na, K, Mg, Ca, Ba, Sr, Ti, Ce, Cr, Mo, Mn, Fe, Rb, Co, Rh, Ni, Pd, Pt, Cu, and Ag, and derived from alcs., aldehydes, ketones, esters, anhydrides, sulfonates, phosphonates, chelates, phenates, crown ethers, carboxylates, amides, halides, oxides, nitrates, sulfates, phosphates, nitrides, hydrides, carbonates, etc. Sulfur oxides react with the water-sol. metal additive to form metal sulfates that are removed from the exhaust gases by the particulate trap component in the exhaust gas treatment system. The additive (preferably **manganese** methylcyclopentadienyltricarbonyl) is esp. suitable for **gasoline**, **diesel fuel**, residual and bunker **fuel** oils, middle distillates, biodiesel, alc. **fuels**, biomass-derived **fuels**, and waste-derived **fuels**. The **fuels** can also contain oxygenate additives for further emission redn.
ST **gasoline diesel** sulfur oxide scavenger additive; metal complex sulfur oxide scavenger **fuel** additive; sulfur oxide emission redn **gasoline diesel** additive; **manganese** methylcyclopentadienyl tricarbonyl **gasoline** pollution scavenging additive
IT **Diesel fuel** substitutes
(biodiesel, pollution scavenger additives for; water-sol. metal compd. additives for scavenging of sulfur oxides in combustion of hydrocarbon **fuels**)
IT **Gasoline** additives

(combustion improvers, oxygenates; water-sol. metal compd. additives for scavenging of sulfur oxides in combustion of hydrocarbon **fuels**)

IT Alcohols, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**fuels**, pollution scavenger additives for; water-sol. metal compd. additives for scavenging of sulfur oxides in combustion of hydrocarbon **fuels**)

IT Aldehydes, uses
Anhydrides
Esters, uses
Ketones, uses
RL: MOA (Modifier or additive use); USES (Uses)
(metal compds., sulfur oxide scavengers, for **fuels**; water-sol. metal compd. additives for scavenging of sulfur oxides in combustion of hydrocarbon **fuels**)

IT Amides, uses
Crown ethers
RL: MOA (Modifier or additive use); USES (Uses)
(metal complexes, sulfur oxide scavengers, for **fuels**; water-sol. metal compd. additives for scavenging of sulfur oxides in combustion of hydrocarbon **fuels**)

IT Chelating agents
(metal salts, sulfur oxide scavengers, for **fuels**; water-sol. metal compd. additives for scavenging of sulfur oxides in combustion of hydrocarbon **fuels**)

IT Carboxylic acids, uses
Phenols, uses
RL: MOA (Modifier or additive use); USES (Uses)
(metal salts, sulfur oxide scavengers, for **fuels**; water-sol. metal compd. additives for scavenging of sulfur oxides in combustion of hydrocarbon **fuels**)

IT **Diesel fuel** substitutes
Gasoline substitutes
(pollution scavenger additives for; water-sol. metal compd. additives for scavenging of sulfur oxides in combustion of hydrocarbon **fuels**)

IT **Diesel fuel** additives
Fuel additives
Fuel oil additives
Gasoline additives
(pollution scavengers; water-sol. metal compd. additives for scavenging of sulfur oxides in combustion of hydrocarbon **fuels**)

IT Sulfonic acids, uses
RL: MOA (Modifier or additive use); USES (Uses)
(salts, sulfur oxide scavengers, for **fuels**; water-sol. metal compd. additives for scavenging of sulfur oxides in combustion of hydrocarbon **fuels**)

IT Metal alkoxides
Organometallic compounds
RL: MOA (Modifier or additive use); USES (Uses)
(sulfur oxide scavengers, for **fuels**; water-sol. metal compd. additives for scavenging of sulfur oxides in combustion of hydrocarbon **fuels**)

IT **Fuels**
(synthetic, biomass-derived, pollution scavenger additives for; water-sol. metal compd. additives for scavenging of sulfur oxides in combustion of hydrocarbon **fuels**)

IT 7439-89-6D, Iron, water-sol. org. compds. 7439-95-4D, Magnesium, water-sol. org. compds. 7439-96-5D, **Manganese**, water-sol. org. compds. 7439-98-7D, Molybdenum, water-sol. org. compds. 7440-02-0D, Nickel, water-sol. org. compds. 7440-05-3D, Palladium, water-sol. org.

compds. 7440-06-4D, **Platinum**, water-sol. org. compds. 7440-09-7D, Potassium, water-sol. org. compds. 7440-16-6D, Rhodium, water-sol. org. compds. 7440-17-7D, Rubidium, water-sol. org. compds. 7440-22-4D, Silver, water-sol. org. compds. 7440-23-5D, Sodium, water-sol. org. compds. 7440-24-6D, Strontium, water-sol. org. compds. 7440-32-6D, Titanium, water-sol. org. compds. 7440-39-3D, Barium, water-sol. org. compds. 7440-45-1D, **Cerium**, water-sol. org. compds. 7440-47-3D, Chromium, water-sol. org. compds. 7440-48-4D, Cobalt, water-sol. org. compds. 7440-50-8D, Copper, water-sol. org. compds. 7440-70-2D, Calcium, water-sol. org. compds. 12108-13-3, Methylcyclopentadienylmanganese tricarbonyl 13598-36-2D, Phosphonic acid, metal salts
RL: MOA (Modifier or additive use); USES (Uses)
(sulfur oxide scavengers, for **fuels**; water-sol. metal compd. additives for scavenging of sulfur oxides in combustion of hydrocarbon **fuels**)

L6 ANSWER 5 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 2003:708133 CAPLUS
DN 139:367140
ED Entered STN: 10 Sep 2003
TI Hydrogenation of aromatics over supported noble metal catalysts ex **organometallic** complexes
AU Rojas, S.; Terreros, P.; Pena, M. A.; Ojeda, M.; Fierro, J. L. G.; Otero, A.; Carrillo, F.
CS Facultad de Ciencias, Quimicas, Departamento de Quimica Inorganica, Organica y Bioquimica, Universidad de Castilla-La Mancha, Ciudad Real, 13071, Spain
SO Journal of Molecular Catalysis A: Chemical (2003), 206(1-2), 299-311
CODEN: JMCCF2; ISSN: 1381-1169
PB Elsevier Science B.V.
DT Journal
LA English
CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
AB In the present work, **organometallic** complexes were used as metal precursors for the synthesis of sulfur-resistant noble metal catalysts. The catalysts were tested in the hydrogenation reaction of **diesel** fuel model-type mols. Dibenzothiophene was used as the source of sulfur. The **organometallic**-based catalysts activity was compared with the activity displayed by a com. Pt/Al2O3 hydrogenation catalyst. Comparable activity results were obtained when the reaction was carried in the presence of sulfur contg. mols. However, the **organometallic**-based catalysts were only active once the ligands had been removed from the metal coordination sphere, thus allowing the reactant mols. to adsorb on the metallic surface centers. Accordingly, the major advantage of this methodol. may lie in improved metallic dispersion, which will be reflected in catalysts with greater sulfur resistance, rather than in the electronic or steric effects ascribed to **organometallic** precursors.
ST **diesel** fuel petroleum hydrodearomatization catalyst noble metal
IT Petroleum hydrotreating catalysts
(hydrodearomatization; hydrogenation of aroms. over supported noble metal catalysts ex **organometallic** complexes)
IT **Diesel** fuel
(hydrogenation of aroms. over supported noble metal catalysts ex **organometallic** complexes)
IT Noble metals
RL: CAT (Catalyst use); USES (Uses)
(hydrogenation of aroms. over supported noble metal catalysts ex **organometallic** complexes)
IT 7440-05-3, Palladium, uses 7440-06-4, **Platinum**, uses 7440-16-6, Rhodium, uses

RL: CAT (Catalyst use); USES (Uses)
(hydrogenation of aroms. over supported noble metal catalysts ex **organometallic** complexes)

RE.CNT 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L6 ANSWER 6 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text

AN 2003:320002 CAPLUS
DN 138:340729
ED Entered STN: 25 Apr 2003
TI Tert-alkyl amines and ferrocene as stabilizers-combustion improver additives for fuel oils and **diesel** fuel
IN Kitchen, George H., III; Furlong, Robert J.
PA International Lubrication and Fuel Consultants, Inc., USA
SO PCT Int. Appl., 21 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C10L001-22
ICS C10L001-30
CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 1

Applicant

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003033627	A2	20030424	WO 2002-US32882	20021015
	WO 2003033627	A3	20031211		
	WO 2003033627	B1	20040219		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

	US 2003172583	A1	20030918	US 2001-981411	20011016
PRAI	US 2001-981411	A	20011016		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2003033627	ICM	C10L001-22
	ICS	C10L001-30

AB An additive for **diesel** fuels and fuel oils, consisting of a fuel stabilizer and an **organometallic** compd., is present at <8 ppm concn. Such an additive is a 0.05-0.5:0.001-0.005 wt. part ratio of a high-mol.-wt. amine (preferably C12-14-amine) and 0.1-0.5 a Fe-, Mn-, Pt-, or Ce **organometallic** compd. (preferably ferrocene or ferrocene homologs), dissolved in a high-flash-point solvent, preferably a C10-13-cycloparaffinic-isoparaffinic solvent naphtha. In addn., the compn. can contain a polyamine-type dispersant, a lubricant, metal deactivator, and a biocide.

ST stabilizer combustion improver fuel oil **diesel** fuel; tert amine stabilizer fuel oil **diesel** fuel; ferrocene combustion improver fuel oil **diesel** fuel; dispersant biocide metal deactivator fuel oil **diesel** fuel

IT Amines, uses
RL: MOA (Modifier or additive use); USES (Uses)
(C12-14-tert-alkyl, stabilizers; tert-alkyl amines and ferrocene as stabilizers-combustion improver additives for fuel oils and **diesel** fuel)

IT Fuel oil additives
(biocides; tert-alkyl amines and ferrocene as stabilizers-combustion improver additives for fuel oils and **diesel** fuel)

IT Fuel oil additives
(combustion improvers, ferrocene and ferrocene homologs; tert-alkyl amines and ferrocene as stabilizers-combustion improver additives for fuel oils and **diesel** fuel)

IT Fuel oil additives
(dispersants; tert-alkyl amines and ferrocene as stabilizers-combustion improver additives for fuel oils and **diesel** fuel)

IT Dispersing agents
(fuel oil additives; tert-alkyl amines and ferrocene as stabilizers-combustion improver additives for fuel oils and **diesel** fuel)

IT Locomotives
(heavy fuel oil additives for; tert-alkyl amines and ferrocene as stabilizers-combustion improver additives for fuel oils and **diesel** fuel)

IT Solvent naphtha
(high-flash-point; tert-alkyl amines and ferrocene as stabilizers-combustion improver additives for fuel oils and **diesel** fuel)

IT Naphtha
RL: TEM (Technical or engineered material use); USES (Uses)
(high-flash-point; tert-alkyl amines and ferrocene as stabilizers-combustion improver additives for fuel oils and **diesel** fuel)
IT Naphthenic oils
RL: TEM (Technical or engineered material use); USES (Uses)
(low arom., Conosol C 145, high-flash-point; tert-alkyl amines and ferrocene as stabilizers-combustion improver additives for fuel oils and **diesel** fuel)
IT Fuel oil additives
(metal deactivators; tert-alkyl amines and ferrocene as stabilizers-combustion improver additives for fuel oils and **diesel** fuel)
IT Fuel oil additives
(stabilizers; tert-alkyl amines and ferrocene as stabilizers-combustion improver additives for fuel oils and **diesel** fuel)
IT **Diesel** fuel additives
(tert-alkyl amines and ferrocene as stabilizers-combustion improver additives for fuel oils and **diesel** fuel)
IT Amines, uses
RL: MOA (Modifier or additive use); USES (Uses)
(tert-alkyl, stabilizers; tert-alkyl amines and ferrocene as stabilizers-combustion improver additives for fuel oils and **diesel** fuel)
IT 7779-27-3, Vancide th
RL: MOA (Modifier or additive use); USES (Uses)
(biocide; tert-alkyl amines and ferrocene as stabilizers-combustion improver additives for fuel oils and **diesel** fuel)
IT 102-54-5, Ferrocene 102-54-5D, Ferrocene, homologs 7439-89-6D, Iron, **organometallic** compds. 7439-96-5D, **Manganese**, **organometallic** compds. 7440-06-4D, **Platinum**, **organometallic** compds. 7440-45-1D, **Cerium**, **organometallic** compds.
RL: MOA (Modifier or additive use); USES (Uses)
(combustion improvers; tert-alkyl amines and ferrocene as stabilizers-combustion improver additives for fuel oils and **diesel** fuel)
IT 515140-61-1, Viscoplex 6-917
RL: MOA (Modifier or additive use); USES (Uses)
(fuel oil dispersant; tert-alkyl amines and ferrocene as stabilizers-combustion improver additives for fuel oils and **diesel** fuel)
IT 107-15-3, Ethylenediamine, uses 26545-55-1, Propanediamine
RL: MOA (Modifier or additive use); USES (Uses)
(metal deactivators; tert-alkyl amines and ferrocene as stabilizers-combustion improver additives for fuel oils and **diesel** fuel)
IT 515140-43-9, Primene RB 3
RL: MOA (Modifier or additive use); USES (Uses)
(stabilizers; tert-alkyl amines and ferrocene as stabilizers-combustion improver additives for fuel oils and **diesel** fuel)

L6 ANSWER 7 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 2003:192759 CAPLUS
DN 138:190532
ED Entered STN: 12 Mar 2003
TI Oil-soluble additives for suppressing formation of solid particles in **diesel** engine exhaust gases
IN Zappelli, Piergiorgio; Riocci, Mario; Beretta, Alberto; Contarini, Salvatore

PA Enitecnologie S.p.A., Italy
SO Ital. Appl., 38 pp.
CODEN: ITXXCZ
DT Patent
LA Italian
IC ICM C07D
CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 29, 59
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	IT 2000MI0977	A1	20011105	IT 2000-MI977	20000505
	IT 1318498	B1	20030825		
PRAI	IT 2000-MI977		20000505		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
IT 2000MI0977	ICM	C07D

AB **Organometallic** derivs. consist of (1) an org. fraction forming ligands, preferably from a group of 2-[2-(2-butoxyethoxy)ethoxy]acetic acid, 2-{2-[2-(2-butoxyethoxy)ethoxy]ethoxy}acetic acid, and 2-bis[2-(2-butoxyethoxy)ethoxy]acetic acid and (2) a coordination metal selected from a group of Li, Na, Ba, Ca, Fe, Mn, Cu, Ce, Pb, and Zn. Preferably, the coordination metals are Fe and Ce. The **organometallic** derivs. are used as **diesel** fuel additives for suppression of formation of soot particles due to incomplete combustion in the engine.
ST **diesel** fuel additive soot formation suppression **organometallic** compd
IT Air pollution
(control; oil-sol. additives for suppressing formation of soot particles in **diesel** engine exhaust gases)
IT **Diesel** fuel additives
(oil-sol. additives for suppressing formation of soot particles in **diesel** engine exhaust gases)
IT 7439-89-6D, Iron, complexes with 2-[2-(2-butoxyethoxy)ethoxy]acetic acid 7440-45-1D, **Cerium**, complexes with 2-[2-(2-butoxyethoxy)ethoxy]acetic acid 75427-76-8D, **cerium** and iron complexes
RL: TEM (Technical or engineered material use); USES (Uses)
(**diesel** fuel additive for suppressing formation of soot particles in **diesel** engine exhaust gases)
IT 10138-04-2 10139-51-2 75427-76-8 98926-77-3, 3,6,9,12-Tetraoxahexadecanoic acid
RL: RCT (Reactant); RACT (Reactant or reagent)
(in prepn. of **organometallic** compds. used as **diesel** fuel additives)

L6 ANSWER 8 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 2002:529409 CAPLUS
DN 137:313233
ED Entered STN: 16 Jul 2002
TI Comprehensive characterization of engine deposits from **fuel** containing MMT
AU Nelson, Art J.; Reynolds, John G.; Roos, Joseph W.
CS Chemistry and Chemical Eng. Division, University of California, Lawrence Livermore National Laboratory, Livermore, CA, 94550, USA
SO Science of the Total Environment (2002), 295(1-3), 183-205
CODEN: STENDL; ISSN: 0048-9697
PB Elsevier Science Ireland Ltd.
DT Journal
LA English
CC 51-12 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 59

AB Combustion chamber deposits from a 1996 GM3800 engine operating on a base **fuel** or the base **fuel** contg. the **organometallic** antiknock additive methylcyclopentadienyl **manganese** tricarbonyl were examd. SEM and Energy Dispersive x-ray spectroscopic anal. were performed to identify the morphol. and the bulk chem. compn. Glow-Discharge Mass Spectrometry and x-ray Diffraction analyses were also used to characterize the bulk chem. compn. and cryst. structure of the deposits. In addn., x-ray photoemission and x-ray photoabsorption spectra for the deposits were compared to a series of Mn compds. to model and aid quantification of the constituents. Results reveal a mixt. of Ca-sulfate, Mn-phosphate and Mn-oxide in the bulk of the deposits and a mixt. of Mn-sulfate, Mn-phosphate and Mn-oxide on the surface of the deposits.

ST characterization engine deposit **fuel** antiknock additive MMT

IT **Gasoline** additives
(antiknock; comprehensive characterization of engine deposits from **fuel** contg. MMT)

IT Combustion apparatus
(chambers; comprehensive characterization of engine deposits from **fuel** contg. MMT)

IT 7778-18-9, Calcium sulfate 7785-87-7, **Manganese** sulfate 10124-54-6, **Manganese** phosphate 11129-60-5, **Manganese** oxide
RL: FMU (Formation, unclassified); OCU (Occurrence, unclassified); FORM (Formation, nonpreparative); OCCU (Occurrence)
(comprehensive characterization of engine deposits from **fuel** contg. MMT)

IT 12108-13-3, Methylcyclopentadienyl **manganese** tricarbonyl
RL: MOA (Modifier or additive use); USES (Uses)
(comprehensive characterization of engine deposits from **fuel** contg. MMT)

RE.CNT 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L6 ANSWER 9 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text
AN 2002:466136 CAPLUS
DN 137:49515
ED Entered STN: 21 Jun 2002
TI Ultra-low sulfur **fuel** compositions containing **organometallic** additives
IN Roos, Joseph W.; Openshaw, Martin J.; Scull, Herbert M.; Meffert, Michael W.
PA Ethyl Corporation, USA
SO PCT Int. Appl., 30 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C10L001-10
ICS C10L001-32
CC 51-7 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002048293	A1	20020620	WO 2001-US48863	20011212
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	AU 2002027422	A5	20020624	AU 2002-27422	20011212
	EP 1368444	A1	20031210	EP 2001-996274	20011212
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	BR 2001016116	A	20031223	BR 2001-16116	20011212
	JP 2004515640	T2	20040527	JP 2002-549812	20011212
	US 2004040201	A1	20040304	US 2003-450201	20030611
PRAI	US 2000-254845P	P	20001212		
	WO 2001-US48863	W	20011212		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2002048293	ICM	C10L001-10
	ICS	C10L001-32
JP 2004515640	FTERM	3G091/AA02; 3G091/AA17; 3G091/AA18; 3G091/AB04; 3G091/BA11; 3G091/BA14; 3G091/GB02W; 3G091/GB03W; 3G091/GB05W; 4H013/CA02; 4H015/AA25; 4H015/AA26; 4H015/AB07

AB A method, app., and **fuel** compn. for the protection of a catalytic after treatment system and a method for protecting a catalytic after treatment system in a low sulfur **fuel** system are disclosed. A scavenging agent is introduced into the base **fuel** in an amt. effective to complex with catalytic poisoning combustion by products and reduce catalyst poisoning. In a preferred embodiment, the scavenger is an **organometallic** compd. which also imparts addnl. desirable properties to the **fuel**.
ST catalyst poisoning prevention **organometallic** additive low sulfur **fuel**
IT **Gasoline**
RL: CPS (Chemical process); EPR (Engineering process); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(aviation; ultra-low sulfur **fuel** compns. contg. **organometallic** additives to prevent catalyst poisoning)
IT Gas sensors
(exhaust; ultra-low sulfur **fuel** compns. contg. **organometallic** additives to prevent catalyst poisoning)

IT Catalysts
(three-way; ultra-low sulfur **fuel** compns. contg. **organometallic** additives to prevent catalyst poisoning)
IT **Diesel fuel**
Exhaust gas catalytic converters
Fuels
Jet aircraft **fuel**
Oxidation catalysts
Poisoning, catalytic
Scavengers
(ultra-low sulfur **fuel** compns. contg. **organometallic** additives to prevent catalyst poisoning)
IT Alkali metals, uses
Alkaline earth metals
Transition metals, uses
RL: CAT (Catalyst use); USES (Uses)
(ultra-low sulfur **fuel** compns. contg. **organometallic** additives to prevent catalyst poisoning)
IT **Gasoline**
RL: CPS (Chemical process); EPR (Engineering process); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(ultra-low sulfur **fuel** compns. contg. **organometallic** additives to prevent catalyst poisoning)
IT **Organometallic** compounds
RL: NUU (Other use, unclassified); USES (Uses)
(ultra-low sulfur **fuel** compns. contg. **organometallic** additives to prevent catalyst poisoning)
IT 7439-89-6, Iron, uses 7439-96-5, **Manganese**, uses 7440-05-3, Palladium, uses 7440-06-4, **Platinum**, uses 7440-24-6, Strontium, uses 7440-39-3, Barium, uses 7440-70-2, Calcium, uses
RL: NUU (Other use, unclassified); USES (Uses)
(scavengers; ultra-low sulfur **fuel** compns. contg. **organometallic** additives to prevent catalyst poisoning)
IT 11104-93-1, Nitrogen oxide, processes
RL: REM (Removal or disposal); PROC (Process)
(scavengers; ultra-low sulfur **fuel** compns. contg. **organometallic** additives to prevent catalyst poisoning)
IT 7439-96-5D, **Manganese**, tricarbonyl compds.
RL: NUU (Other use, unclassified); USES (Uses)
(ultra-low sulfur **fuel** compns. contg. **organometallic** additives to prevent catalyst poisoning)
IT 7439-92-1, Lead, processes 7704-34-9, Sulfur, processes 7723-14-0, Phosphorus, processes
RL: REM (Removal or disposal); PROC (Process)
(ultra-low sulfur **fuel** compns. contg. **organometallic** additives to prevent catalyst poisoning)
RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Barr; US 5912190 A 1999 CAPLUS
(2) Epperly; US 5034020 A 1991 CAPLUS
(3) Fleischer; US 6200358 B1 2001 CAPLUS
(4) Shustorovich; US 6152972 A 2000 CAPLUS
(5) Valentine; US 5501714 A 1996 CAPLUS

L6 ANSWER 10 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 2002:462520 CAPLUS
DN 137:36895
ED Entered STN: 20 Jun 2002
TI Method for enhancing the durability of a catalytic exhaust gas system using a metal scavenger additive in the **gasoline** or **diesel fuel**
IN Roos, Joseph W.; Openshaw, Martin J.; Scull, Herbert M.

PA Ethyl Corporation, USA
SO Eur. Pat. Appl., 17 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM C10L001-30
ICS B01D053-46; B01D053-48
CC 59-3 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51, 67
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1215272	A1	20020619	EP 2001-204755	20011210
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	US 2002112466	A1	20020822	US 2000-734946	20001212
	US 6629407	B2	20031007		
	JP 2002221100	A2	20020809	JP 2001-376983	20011211
	BR 2001006112	A	20020806	BR 2001-6112	20011212
	CN 1381302	A	20021127	CN 2001-144798	20011212
	US 2003177758	A1	20030925	US 2003-455637	20030605
PRAI	US 2000-734946	A	20001212		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
EP 1215272	ICM	C10L001-30
	ICS	B01D053-46; B01D053-48
US 2002112466	ECLA	B01D053/94Y
US 2003177758	ECLA	B01D053/94Y

AB A method, app., and **fuel** compn. for the protection of a catalytic after treatment system and a method for protecting a catalytic after treatment system in a lean burn system are disclosed. A scavenging agent is introduced into the combustion chamber in an amt. effective to complex with catalytic poisoning combustion byproducts and improve emissions system durability. In a preferred embodiment, the scavenger is an **organometallic** compd. which also imparts addnl. desirable properties to the **fuel**, and said **organometallic** compd. comprises at least one metal selected from the group consisting of magnesium, **manganese**, barium, **cerium**, strontium, iron, calcium, **platinum**, palladium.

ST exhaust gas catalytic converter metal scavenger **fuel** additive

IT Exhaust gas catalytic converters
(**fuel** scavenger; method for enhancing the durability of a catalytic exhaust gas system using a metal scavenger additive in the **gasoline** or **diesel fuel**)

IT **Diesel fuel**
Oxidation catalysts
Poisoning, catalytic
Scavengers
(method for enhancing the durability of a catalytic exhaust gas system using a metal scavenger additive in the **gasoline** or **diesel fuel**)

IT **Organometallic** compounds
RL: REM (Removal or disposal); PROC (Process)
(method for enhancing the durability of a catalytic exhaust gas system using a metal scavenger additive in the **gasoline** or **diesel fuel**)

IT **Gasoline**
RL: TEM (Technical or engineered material use); USES (Uses)
(method for enhancing the durability of a catalytic exhaust gas system using a metal scavenger additive in the **gasoline** or **diesel fuel**)

IT 11104-93-1, Nitrogen oxide, processes

RL: REM (Removal or disposal); PROC (Process)
(method for enhancing the durability of a catalytic exhaust gas system using a metal scavenger additive in the **gasoline** or **diesel fuel**)

IT 7439-89-6D, Iron, org. compds. 7439-95-4D, Magnesium, org. compds. 7439-96-5D, **Manganese**, org. compds. 7440-05-3D, Palladium, org. compds. 7440-06-4D, **Platinum**, org. compds. 7440-24-6D, Strontium, org. compds. 7440-39-3D, Barium, org. compds. 7440-45-1D, **Cerium**, org. compds. 7440-70-2D, Calcium, org. compds. 12079-65-1, Cyclopentadienyl **manganese** tricarbonyl 12108-13-3, Methyl cyclopentadienyl **manganese** tricarbonyl
RL: TEM (Technical or engineered material use); USES (Uses)
(scavengers; method for enhancing the durability of a catalytic exhaust gas system using a metal scavenger additive in the **gasoline** or **diesel fuel**)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Davis, R; US 4674447 A 1987
(2) Ethyl Corp; EP 0667387 A 1995 CAPLUS
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L6 ANSWER 11 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text

AN 1999:791940 CAPLUS
DN 132:13602
ED Entered STN: 16 Dec 1999
TI Analysis of **manganese** particulates from automotive decomposition of methylcyclopentadienyl **manganese** tricarbonyl
AU Colmenares, C.; Deutsch, Steven; Evans, Cheryl; Nelson, A. J.; Terminello, Louis J.; Reynolds, John G.; Roos, Joseph W.; Smith, Isaac L.
CS Lawrence Livermore National Laboratory, University of California, Livermore, CA, 94550, USA
SO Applied Surface Science (1999), 151(3-4), 189-202
CODEN: ASUSEE; ISSN: 0169-4332
PB Elsevier Science B.V.
DT Journal
LA English
CC 51-6 (Fossil Fuels, Derivatives, and Related Products)
AB Particulates have been collected and analyzed from automotive vehicles operating on **fuel** contg. the **organometallic** antiknock additive methylcyclopentadienyl **manganese** tricarbonyl. Electron spectroscopy for chem. anal. and L-edge X-ray absorption spectroscopy were used to study and identify the **manganese** species present in these emitted particulates. Respirable size particulates with a mass median aerodynamic diam. of 2.5 μm or less (PM2.5) in vehicle exhaust contain **manganese** primarily in the form of a **manganese** phosphate and/or sulfate.
ST **gasoline** antiknock methylcyclopentadienyl **manganese** tricarbonyl **manganese** particulates
IT Airborne particles
Exhaust gases (engine)
(anal. of **manganese** particulates from automotive decompn. of methylcyclopentadienyl **manganese** tricarbonyl)
IT **Gasoline** additives
(antiknock; anal. of **manganese** particulates from automotive decompn. of methylcyclopentadienyl **manganese** tricarbonyl)
IT 7439-96-5P, **Manganese**, preparation
RL: BYP (Byproduct); POL (Pollutant); OCCU (Occurrence); PREP (Preparation)
(anal. of **manganese** particulates from automotive decompn. of methylcyclopentadienyl **manganese** tricarbonyl)
IT 12108-13-3, Methylcyclopentadienyl **manganese** tricarbonyl

RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(**gasoline** antiknock,; anal. of **manganese** particulates from automotive decompn. of methylcyclopentadienyl **manganese** tricarbonyl)

RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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(2) Aoki, A; Jpn J Appl Phys 1976, V15(2), P305 CAPLUS
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(13) Morgan, W; J Am Chem Soc 1973, V95, P751 CAPLUS
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L6 ANSWER 12 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text

AN 1999:739613 CAPLUS
DN 131:324848
ED Entered STN: 22 Nov 1999
TI **Fuel** additive for neutralizing sulfur dioxide and/or sulfur trioxide in exhaust gases
IN Fleischer, Holger; Hirsch, Eberhard; Thiemann, Karl Heinz
PA DaimlerChrysler A.-G., Germany
SO Fr. Demande, 10 pp.
CODEN: FRXXBL
DT Patent
LA French
IC ICM C10L001-10
ICS B01D053-50; B01D046-00; F01N003-02; F01N003-20
CC 51-7 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 59

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	FR 2777900	A1	19991029	FR 1999-5100	19990422
	FR 2777900	B1	20031114		
	DE 19818536	A1	19991111	DE 1998-19818536	19980424
	DE 19818536	C2	20020411		
	JP 2000027712	A2	20000125	JP 1999-150375	19990421
	JP 3154105	B2	20010409		
	US 6200358	B1	20010313	US 1999-296661	19990423
	IT 1307573	B1	20011114	IT 1999-RM253	19990423
PRAI	DE 1998-19818536	A	19980424		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
FR 2777900	ICM	C10L001-10
	ICS	B01D053-50; B01D046-00; F01N003-02; F01N003-20

AB Sol. metal compds., esp. salts, are added to **gasoline** or **diesel fuels** for formation of particulate sulfates in the exhaust gases of internal combustion engines, decreasing SO2 and SO3 emissions.

ST **fuel** additive sulfur oxide emission redn; **gasoline** additive SO2 SO3 emission redn; **diesel fuel** additive SO2 SO3 emission redn

IT Air pollution
(control; **fuel** additive for neutralizing SO2 and/or SO3 in exhaust gases)

IT **Diesel fuel** additives
Exhaust gases (engine)
Gasoline additives
(**fuel** additive for neutralizing SO2 and/or SO3 in exhaust gases)

IT Sulfates, formation (nonpreparative)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(**fuel** additive for neutralizing SO2 and/or SO3 in exhaust gases)

IT Chelates
RL: MOA (Modifier or additive use); USES (Uses)
(**fuel** additive for neutralizing SO2 and/or SO3 in exhaust gases)

IT Coordination compounds
RL: MOA (Modifier or additive use); USES (Uses)
(**fuel** additive for neutralizing SO2 and/or SO3 in exhaust gases)

IT **Organometallic** compounds
RL: MOA (Modifier or additive use); USES (Uses)
(**fuel** additive for neutralizing SO2 and/or SO3 in exhaust gases)

IT Salts, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**fuel** additive for neutralizing SO2 and/or SO3 in exhaust gases)

IT 7439-89-6D, Iron, salts/compds., uses 7439-92-1D, Lead, salts/compds., uses 7439-95-4D, Magnesium, salts/compds., uses 7439-96-5D, **Manganese**, salts/compds., uses 7439-98-7D, Molybdenum, salts/compds., uses 7440-02-0D, Nickel, salts/compds., uses 7440-24-6D, Strontium, salts/compds., uses 7440-39-3D, Barium, salts/compds., uses 7440-43-9D, Cadmium, salts/compds., uses 7440-47-3D, Chromium, salts/compds., uses 7440-48-4D, Cobalt, salts/compds., uses 7440-62-2D, Vanadium, salts/compds., uses 7440-66-6D, Zinc, salts/compds., uses 7440-70-2D, Calcium, salts/compds., uses
RL: MOA (Modifier or additive use); USES (Uses)
(**fuel** additive for neutralizing SO2 and/or SO3 in exhaust gases)

IT 7446-09-5, Sulfur dioxide, processes 7446-11-9, Sulfur trioxide, processes
RL: POL (Pollutant); REM (Removal or disposal); OCCU (Occurrence); PROC (Process)
(**fuel** additive for neutralizing SO2 and/or SO3 in exhaust gases)

L6 ANSWER 13 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1999:696968 CAPLUS
DN 132:31847
ED Entered STN: 02 Nov 1999

TI Speciation of Methylcyclopentadienyl **Manganese** Tricarbonyl by High-Performance Liquid Chromatography-Diode Laser Atomic Absorption Spectrometry

AU Butcher, David J.; Zybin, Aleksandr; Bolshov, Michail A.; Niemax, Kay
CS Institute of Spectrochemistry and Applied Spectroscopy, Dortmund, D-44139, Germany

SO Analytical Chemistry (1999), 71(23), 5379-5385
CODEN: ANCHAM; ISSN: 0003-2700
PB American Chemical Society
DT Journal
LA English
CC 4-1 (Toxicology)

AB Methylcyclopentadienyl **manganese** tricarbonyl (MMT) is a **fuel** additive that has been marketed for use in unleaded **gasoline** since Dec. 1995. The widespread use of this additive has been suggested to cause health risks, but limitations in data regarding its degrdn. products and their toxicity prevent an accurate evaluation. To monitor the organomanganese compds., it is clearly advantageous to employ low-cost, high-sensitivity, **manganese**-specific instrumentation to perform speciation. In this work, instrumentation fitting these criteria was obtained by the combination of high-performance liq. chromatog. (HPLC) with diode laser at. absorption spectrometry (DLAAS) and was used to det. MMT, its nonmethylated deriv., cyclopentadienyl **manganese** tricarbonyl (CMT), and inorg. **manganese**. DLAAS was shown to be a versatile anal. technique for total Mn detn., with a detection limit of 1 ng/mL and a linear dynamic range (LDR) of almost 5 orders of magnitude. Anal. figures of merit for HPLC-DLAAS included a detection limit of 2 ng (as Mn)/mL, a LDR of 3 orders of magnitude, and an anal. time of three minutes. The **organometallic** compds. are characterized by rapid photolysis in sunlight, and hence, expts. were performed to evaluate whether normal lab. lighting is suitable for their detn. Our results showed that normal lab. protocols may be employed except that the organomanganese compds. should be stored away from light except during sample introduction procedures. The ability of the instrumentation to selectively preconc. organomanganese compds. while removing inorg. **manganese** was demonstrated. Sufficient resoln. was obtained to det. a 20-fold excess of CMT compared with MMT. The ability of the system to do practical anal. was demonstrated by the accurate detn. of MMT in spiked samples of **gasoline**, human urine, and tap water. These results demonstrate the suitability of HPLC-DLAAS for the speciation of MMT and its derivs. in industrial, toxicol., and environmental samples.

ST methylcyclopentadienyl **manganese** tricarbonyl HPLC; liq chromatog methylcyclopentadienyl **manganese** tricarbonyl

IT HPLC
(speciation of methylcyclopentadienyl **manganese** tricarbonyl by high-performance liq. chromatog.-diode laser at. absorption spectrometry)

IT 7439-96-5, **Manganese**, analysis 12079-65-1, Cyclopentadienyl **manganese** tricarbonyl 12108-13-3, Methylcyclopentadienyl **manganese** tricarbonyl
RL: ANT (Analyte); ANST (Analytical study)
(speciation of methylcyclopentadienyl **manganese** tricarbonyl by high-performance liq. chromatog.-diode laser at. absorption spectrometry)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Davis, J; Environ Health Perspect Suppl 1 1998, V106, P191 CAPLUS
(2) Ebdon, L; Analyst 1987, V112, P1 CAPLUS
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L6 ANSWER 14 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1998:677850 CAPLUS
DN 129:304220
ED Entered STN: 27 Oct 1998
TI Organic contaminant recovery from aqueous systems using microporous hollow fibers
IN Sutherland, George; Glassford, Craig
PA G-Tec Inc., Can.
SO PCT Int. Appl., 54 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM B01D017-02
ICS B01D061-14; B01D063-02; B01D069-08; C02F001-44; E02B015-04
CC 48-1 (Unit Operations and Processes)
Section cross-reference(s): 17, 19, 38, 51, 61, 62
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9845019	A1	19981015	WO 1998-CA300	19980403
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	CA 2248280	AA	19981004	CA 1998-2248280	19980403
	AU 9869135	A1	19981030	AU 1998-69135	19980403
PRAI	US 1996-649256		19960530		
	US 1997-832799		19970404		
	WO 1998-CA300		19980403		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 9845019	ICM	B01D017-02
	ICS	B01D061-14; B01D063-02; B01D069-08; C02F001-44; E02B015-04

AB Oils and other immiscible contaminants are sepd. from a liq. body contg. the contaminants such as a water body using a microporous hollow fiber system. The hollow fibers may be arranged in bundles, intersecting arrangements, divergent patterns, mats or a combination of these configurations. The hollow fibers are placed under pressure to force the contaminants into the fibers by way of the pores for subsequent storage in a suitable container. By using means for fiber d. control, a substantial amt. of the hollow fiber surface area may be exposed to the contaminant,

increasing the extn. efficiency from the water body. The unit may be self-contained. The extn. efficiency of the system is greatly enhanced for many different applications. The system and methods are useful for recovering crude oils, metals or other dissolved components such as edible or essential oils, etc., from an aq. phase.

ST org contaminant recovery microporous hollow fiber; oil recovery microporous hollow fiber; crude oil recovery microporous hollow fiber; edible oil recovery microporous hollow fiber; essential oil recovery microporous hollow fiber; metal oil recovery microporous hollow fiber

IT Geological sediments
Soils
(contaminated; org. contaminant recovery from aq. systems using microporous hollow fibers)

IT Drying
(dewatering; org. contaminant recovery from aq. systems using microporous hollow fibers)

IT Polyolefin fibers
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(hollow, EHF 270W, EHF 270FA, EHF 540; org. contaminant recovery from aq. systems using microporous hollow fibers)

IT Membranes, nonbiological
(hollow-fiber; org. contaminant recovery from aq. systems using microporous hollow fibers)

IT Membranes, nonbiological
(microporous; org. contaminant recovery from aq. systems using microporous hollow fibers)

IT **Diesel** fuel
Extraction
Oil spill
Solvent extraction
Water purification
(org. contaminant recovery from aq. systems using microporous hollow fibers)

IT Edible oils
Essential oils
Hydrocarbon oils
Kerosene
Metals, processes
Organometallic compounds
Petroleum, processes
RL: POL (Pollutant); PUR (Purification or recovery); REM (Removal or disposal); OCCU (Occurrence); PREP (Preparation); PROC (Process)
(org. contaminant recovery from aq. systems using microporous hollow fibers)

IT Canola oil
RL: PUR (Purification or recovery); REM (Removal or disposal); PREP (Preparation); PROC (Process)
(org. contaminant recovery from aq. systems using microporous hollow fibers)

IT 59344-62-6, LIX-84 110516-88-6, LIX-984
RL: NUU (Other use, unclassified); USES (Uses)
(org. contaminant recovery from aq. systems using microporous hollow fibers)

IT 7439-89-6P, Iron, processes 7439-96-5P, **Manganese**, processes
7440-02-0P, Nickel, processes 7440-50-8P, Copper, processes
7440-66-6P, Zinc, processes
RL: POL (Pollutant); PUR (Purification or recovery); REM (Removal or disposal); OCCU (Occurrence); PREP (Preparation); PROC (Process)
(org. contaminant recovery from aq. systems using microporous hollow fibers)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE
(1) Nohmi, T; US 4229297 A 1980 CAPLUS
(2) Sartorius Gmbh; WO 9415702 A 1994 CAPLUS
(3) Sutherland, G; WO 9600119 A 1996 CAPLUS
(4) Taylor, J; US 4886603 A 1989 CAPLUS

L6 ANSWER 15 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1996:540214 CAPLUS
DN 125:291934
ED Entered STN: 10 Sep 1996
TI Gas chromatographic determination of **organometallic** compounds with atomic emission detection
AU Becker, Gerhard; Colmsjoe, Anders; Janak, Karel; Nilsson, Ulrika; Oestman, Conny
CS Dep. of Analytical Chemistry, National Inst. for Working Life, Solna, S-17184, Swed.
SO Journal of Microcolumn Separations (1996), 8(5), 345-351
CODEN: JMSEEJ; ISSN: 1040-7685
PB Wiley
DT Journal
LA English
CC 80-4 (Organic Analytical Chemistry)
Section cross-reference(s): 59
AB The authors describe the effect of a modified gas chromatog.-at. emission detection (GC-AED) instrumental setup on the anal. of **organometallic** compds. The installment of an addnl. makeup gas flow pos. effects the performance of the Hewlett Packard (HP) at. emission detector. A partially sealed transfer line capillary end providing a narrowed central flow substantially improved the sensitivity. Lower detectable levels were achieved for several of the studied elements. The parameters makeup gas flow, addnl. makeup gas flow, and transfer line outlet diam. were optimized and their effects on the peak shapes and detectable levels were evaluated. GC-AED anal. was performed for the 1st time for the speciation of volatile metal-contg. compds. present in **diesel** particulate matter. Compds. contg. iron, chromium, and **manganese** were successfully detected.
ST gas chromatog detn **organometallic** atomic emission
IT Chromatography, gas
(**organometallic** compds. detn. by gas chromatog. with at. emission detection)
IT **Organometallic** compounds
RL: ANT (Analyte); ANST (Analytical study)
(**organometallic** compds. detn. by gas chromatog. with at. emission detection)
IT Exhaust gases
(**diesel**, **organometallic** compds. detn. in **diesel** particulate ext. by gas chromatog. with at. emission detection)
IT 7439-89-6, Iron, analysis 7439-96-5, **Manganese**, analysis 7439-97-6, Mercury, analysis 7440-31-5, Tin, analysis 7440-36-0, Antimony, analysis 7440-38-2, Arsenic, analysis 7440-47-3, Chromium, analysis 7723-14-0, Phosphorus, analysis 7782-49-2, Selenium, analysis
RL: ANT (Analyte); ANST (Analytical study)
(**organometallic** compds. detn. by gas chromatog. with at. emission detection)

L6 ANSWER 16 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1996:9666 CAPLUS
DN 124:61057
ED Entered STN: 04 Jan 1996
TI **Cerium** contributes to limiting the presence of particles in **diesel**

engine exhaust gases
AU Lemaire, Jacques; Samaras, Zissis
CS Rhone Poulenc Chimie, Projet Depollution Diesel, Thessaloniki, Greece
SO Technique Moderne (1995), 87(5-6), 9-16
CODEN: TEMDA2; ISSN: 0040-1250
PB SIRPE
DT Journal
LA French
CC 51-12 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 59
AB Incorporation of 100 ppm Ce (as a hydrocarbon-sol. **organometallic** compd.) in **diesel** fuel reduces particulate emissions by ~70%. Ce-contg. (as CeO2) particulates were >90% removed by passage through a regenerable ceramic filter trap. It was calcd. that a 35% redn. in overall particulates was achievable in Europe by the year 2010 if this technol. is adopted by the year 2000 in the European Community. Air pollution by Ce along the highways was estd. to be comparable to natural Ce emissions from rare-earth-contg. rocks.
ST **cerium diesel** fuel combustion additive; particulate emission **diesel** fuel **cerium**; filter trap **cerium** particulate **diesel** fuel
IT Air pollution
(by particulates; **organometallic cerium** additives for redn. of particulate emissions in combustion of **diesel** fuel)
IT Filtration
(of **organometallic cerium** additives for redn. of particulate emissions in combustion of **diesel** fuel)
IT Combustion catalysts
Fuels, **diesel**
Soot
(**organometallic cerium** additives for redn. of particulate emissions in combustion of **diesel** fuel)
IT Particles
(airborne, **organometallic cerium** additives for redn. of particulate emissions in combustion of **diesel** fuel)
IT Filters and Filtering materials
(ceramic, for capture of **organometallic cerium** additives as combustion catalysts in **diesel** fuel)
IT Ceramic materials and wares
(filters, for capture of **organometallic cerium** additives as combustion catalysts in **diesel** fuel)
IT 1306-38-3, **Cerium** oxide (CeO2), uses
RL: CAT (Catalyst use); FMU (Formation, unclassified); POL (Pollutant); REM (Removal or disposal); FORM (Formation, nonpreparative); OCCU (Occurrence); PROC (Process); USES (Uses)
(capture of **cerium** oxide in combustion of **diesel** fuels contg. org. **cerium** as combustion catalysts)
IT 7440-45-1D, **Cerium**, **organometallic** compds.
RL: CAT (Catalyst use); MOA (Modifier or additive use); USES (Uses)
(**organometallic cerium** additives for redn. of particulate emissions in combustion of **diesel** fuel)

L6 ANSWER 17 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1995:316207 CAPLUS
DN 122:269865
ED Entered STN: 28 Jan 1995
TI Low-sulfur **diesel** fuels containing **organometallic** complexes
IN Daly, Daniel T.; Adams, Paul E.; Huang, Nai Z.; Jolley, Scott T.; Koch, Frederick W.; Kolp, Christopher J.; Stoldt, Stephen H.; Walsh, Reed H.; Denis, Richard A.; Dishong, Dennis M.
PA Lubrizol Corp., USA

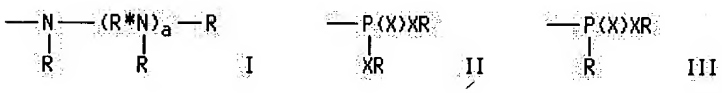
SO U.S., 58 pp. Cont.-in-part of U.S. Ser. No. 699,424, abandoned.
CODEN: USXXAM
DT Patent
LA English
IC ICM C10L001-22
ICS C10L001-26
NCL 044358000
CC 51-7 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5376154	A	19941227	US 1991-753517	19910903
	CN 1066675	A	19921202	CN 1992-102183	19920330
	CA 2083835	AA	19921114	CA 1992-2083835	19920415
	WO 9220763	A1	19921126	WO 1992-US3178	19920415
	W: AU, BG, BR, CA, CS, FI, HU, JP, KR, NO, RO, RU				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE				
	AU 9221753	A1	19921230	AU 1992-21753	19920415
	AU 650996	B2	19940707		
	EP 539572	A1	19930505	EP 1992-912902	19920415
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, MC, NL, SE				
	BR 9205278	A	19930727	BR 1992-5278	19920415
	JP 05508438	T2	19931125	JP 1993-500032	19920415
	HU 64101	A2	19931129	HU 1993-59	19920415
	ZA 9203346	A	19930127	ZA 1992-3346	19920508
	NO 9300079	A	19930111	NO 1993-79	19930111
	US 5518510	A	19960521	US 1994-328050	19941024
PRAI	US 1991-699424	B2	19910513		
	US 1991-753517	A	19910903		
	WO 1992-US3178	A	19920415		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 5376154	ICM	C10L001-22
	ICS	C10L001-26
	NCL	044358000
US 5376154	ECLA	C10L001/14; C10L001/30A; C10L010/06
US 5518510	ECLA	C10L001/14; C10L001/30A; C10L010/06

OS MARPAT 122:269865
GI



AB This invention relates to low-sulfur **diesel** fuels which are useful with **diesel** engines equipped with exhaust system particulate traps. These fuels contain an effective amt. of an **organometallic** complex to lower the ignition temp. of exhaust particles collected in the trap. The sulfur content of these **diesel** fuels is no more than ~0.1% by wt., preferably no more than ~0.05% by wt. The **organometallic** complex is sol. or stably dispersible in the **diesel** fuel and is derived from (i) an org. compd. contg. at least two functional groups attached to a hydrocarbon linkage, and (ii) a metal reactant capable of forming a complex with the org. compd. (i), the metal being any metal capable of reducing the ignition temp. of the exhaust particles. The functional groups include .dbd.X, --XR, --NR2, --NO2, .dbd.NR, .dbd.NXR,

.dbd.N--R--XR, I, II, III, --CN, --N.dbd.NR and --N.dbd.CR2 ; wherein X is O or S, R is H or hydrocarbyl, R* is hydrocarbylene or hydrocarbylidene, and a is a no. (e.g., zero to ~10). Useful metals include Na, K, Mg, Ca, Sr, Ba, Ti, Zr, V, Cr, Mo, Mn, Fe, Co, Cu, Zn, B, Pb, Sb, and mixts. of two or more thereof. This invention is also directed to methods of operating a **diesel** engine equipped with an exhaust system particulate trap using the foregoing low-sulfur **diesel** fuels.

ST **diesel** fuel **organometallic** complex soot control

IT Fuels, **diesel**
Soot
(low-sulfur **diesel** fuels contg. **organometallic** complexes for soot control)

IT Amines, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(C12-18-alkenyl, reaction products, low-sulfur **diesel** fuels contg. **organometallic** complexes for soot control)

IT Amines, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(N-tallow alkyltrimethylenedi-, low-sulfur **diesel** fuels contg. **organometallic** complexes for soot control)

IT Hydrocarbon oils
RL: RCT (Reactant); RACT (Reactant or reagent)
(arom., solvent; low-sulfur **diesel** fuels contg. **organometallic** complexes for soot control)

IT Chemical compounds
RL: MOA (Modifier or additive use); USES (Uses)
(complexes, **organometallic**; low-sulfur **diesel** fuels contg. **organometallic** complexes for soot control)

IT Naphthenic acids, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(copper salts, low-sulfur **diesel** fuels contg. **organometallic** complexes for soot control)

IT Amines, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(dicoco alkyl, low-sulfur **diesel** fuels contg. **organometallic** complexes for soot control)

IT 60-00-4D, Ethylene diamine tetraacetic acid, derivs. 90-30-2, N-Phenyl-α-naphthylamine 92-84-2, Phenothiazine 96-66-2, 4,4'-Thiobis(2-methyl-6-tert-butylphenol) 101-61-1, Tetramethyl diamino diphenylmethane 118-82-1, 4,4'-Methylenebis(2,6-di-tert-butylphenol)
RL: MOA (Modifier or additive use); USES (Uses)
(antioxidant-metal deactivator; low-sulfur **diesel** fuels contg. **organometallic** complexes for soot control)

IT 79-74-3, 2,5-Di-tert-amylhydroquinone 88-26-6 88-27-7 90-66-4 98-29-3 124-22-1, Dodecylamine 128-37-0, 2,6-Di-tert-butyl-p-cresol, uses 135-88-6 147-47-7 4066-02-8, 2,2'-Methylenebis(4-methyl-6-cyclohexylphenol) 15233-47-3 36878-20-3, Dinonyldiphenylamine 52829-07-9, Bis(2,2,6,6-tetramethyl-4-piperidinyl)sebacate 60029-65-4 62529-18-4 148797-90-4 148797-91-5 149646-58-2 149646-59-3
RL: MOA (Modifier or additive use); USES (Uses)
(antioxidant; low-sulfur **diesel** fuels contg. **organometallic** complexes for soot control)

IT 94-91-7 94-91-7D, N,N'-Di-salicylidene-1,2-propanediamine, copper complexes 94-93-9D, N,N'-Disalicylideneethylenediamine, copper complexes 779-84-0D, N-Salicylideneaniline, copper complexes 7440-50-8D, Copper, complexes 17255-48-0D, copper complexes 116591-27-6D, copper complexes 148780-10-3D, copper complexes 149646-57-1D, copper complexes 150398-65-5D, copper complexes
RL: MOA (Modifier or additive use); USES (Uses)
(low-sulfur **diesel** fuels contg. **organometallic** complexes for soot control)

IT 7439-89-6, Iron, uses 7439-92-1, Lead, uses 7439-95-4, Magnesium, uses

7439-96-5, **Manganese**, uses 7439-98-7, Molybdenum, uses 7440-09-7, Potassium, uses 7440-23-5, Sodium, uses 7440-24-6, Strontium, uses 7440-32-6, Titanium, uses 7440-39-3, Barium, uses 7440-42-8, Boron, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-62-2, Vanadium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 7440-70-2, Calcium, uses
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(low-sulfur **diesel** fuels contg. **organometallic** complexes for soot control)

IT 64-17-5, Ethanol, reactions 64-19-7, Acetic acid, reactions 75-15-0, Carbon disulfide, reactions 88-75-5, o-Nitrophenol 90-02-8, Salicylaldehyde, reactions 94-67-7D, Salicylaldoxime, polyisobutenyl derivs. 95-55-6D, p-polyisobutenyl derivs. 100-52-7, Benzaldehyde, reactions 100-63-0, Phenyl hydrazine 104-15-4, p-Toluene sulfonic acid, reactions 105-83-9, 3,3'-Diamino-N-methyldipropylamine 107-15-3, Ethylene diamine, reactions 107-22-2, Glyoxal 108-24-7, Acetic anhydride 108-88-3, Toluene, reactions 109-55-7 109-83-1, N-Methylethanolamine 111-92-2, Dibutyl amine 111-94-4, Propanenitrile, 3,3'-iminobis- 112-57-2, Tetraethylene pentamine 112-62-9, Methyl oleate 118-92-3, Anthranilic acid 118-93-4 123-05-7, 2-Ethylhexanal 141-43-5, Ethanol amine, reactions 144-55-8, Sodium bicarbonate, reactions 148-24-3, 8-Hydroxyquinoline, reactions 298-12-4, Glyoxalic acid 556-52-5, Glycidol 1310-73-2, Sodium hydroxide, reactions 1330-20-7, Xylene, reactions 1336-21-6, Ammonium hydroxide 1572-52-7, 2-Methylene glutaronitrile 1987-50-4, p-Heptyl phenol 2561-85-5, Dodecyl succinic anhydride 5470-11-1, Hydroxylamine hydrochloride 7492-68-4, Coppercarbonate 7632-00-0, Sodium nitrite 7697-37-2, Nitric acid, reactions 10545-99-0, Sulfur dichloride 14676-61-0 16716-56-6 20543-04-8 25103-58-6D, tert-Dodecanethiol, hydroxy thioether derivs. 26997-02-4, Heptyl phenol 28675-17-4, Dodecylaniline 30525-89-4, Paraformaldehyde 37339-32-5, 2-Hydroxy-5-nonylbenzophenoneoxime 42343-07-7 50849-47-3, 5-Nonyl salicylaldoxime 57427-55-1 59351-70-1, Aloxime 200 59661-88-0 108852-88-6 116591-27-6 148780-10-3 149646-57-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(low-sulfur **diesel** fuels contg. **organometallic** complexes for soot control)

L6 ANSWER 18 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1994:634141 CAPLUS
DN 121:234141
ED Entered STN: 12 Nov 1994
TI PETC's on-site natural gas conversion efforts
AU Taylor, Charles E.
CS Pittsburgh Energy Technol. Cent., U.S. Dep. Energy, Pittsburgh, PA, 15236-0940, USA
SO Preprints of Papers - American Chemical Society, Division of Fuel Chemistry (1994), 39(4), 1228-32
CODEN: ACFPAI; ISSN: 0569-3772
PB American Chemical Society, Division of Fuel Chemistry
DT Journal
LA English
CC 51-5 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 45, 52, 67
AB The direct conversion of natural gas (i.e., methane) to transportation **fuels** by oxyhydrochlorination of methane and the oxidn. of methane by **organometallics** is studied. The oxyhydrochlorination reaction is a two-step process which produces **gasoline**-range hydrocarbons. The oxidn. of methane produces Me trifluoroacetate which is readily hydrolyzed to methanol and trifluoroacetic acid.

ST natural gas conversion transportation **fuel**; methane oxyhydrochlorination **gasoline**; oxidn methane methyl trifluoroacetate methanol

IT Natural gas
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(oxyhydrochlorination and oxidn. of methane in prodn. of **gasoline** and methanol **fuel**)

IT **Gasoline**
Naphtha
RL: PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PREP (Preparation); PROC (Process)
(oxyhydrochlorination of methane to Me chloride and its subsequent conversion over zeolite to **gasoline**)

IT Zeolites, uses
RL: CAT (Catalyst use); USES (Uses)
(HZSM 5, oxyhydrochlorination of methane to Me chloride and its subsequent conversion over zeolite to **gasoline**)

IT Petroleum refining
(conversion, oxyhydrochlorination of methane to Me chloride and its subsequent conversion over zeolite to **gasoline**)

IT Hydrochlorination
Hydrochlorination catalysts
(oxy-, oxyhydrochlorination of methane to Me chloride and its subsequent conversion over zeolite to **gasoline**)

IT 7647-01-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydrochlorination, oxy-, oxyhydrochlorination of methane to Me chloride and its subsequent conversion over zeolite to **gasoline**)

IT 67-56-1P, Methanol, preparation
RL: PNU (Preparation, unclassified); PREP (Preparation)
(oxidn. of methane to Me trifluoroacetate with subsequent hydrolysis to methanol)

IT 431-47-0P, Methyl trifluoroacetate
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(oxidn. of methane to Me trifluoroacetate with subsequent hydrolysis to methanol)

IT 3375-31-3, Palladium (II) acetate
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidn. of methane to Me trifluoroacetate with subsequent hydrolysis to methanol)

IT 74-82-8, Methane, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(oxyhydrochlorination and oxidn. of methane in prodn. of **gasoline** and methanol **fuel**)

IT 56-23-5, Tetrachloromethane, formation (nonpreparative) 64-18-6, Formic acid, formation (nonpreparative) 67-66-3, Trichloromethane, formation (nonpreparative) 75-09-2, Methylene chloride, formation (nonpreparative) 124-38-9, Carbon dioxide, formation (nonpreparative)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(oxyhydrochlorination of methane)

IT 630-08-0, Carbon monoxide, formation (nonpreparative)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(oxyhydrochlorination of methane over silica-supported chromium-contg. catalyst)

IT 74-87-3P, Methyl chloride, preparation
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(oxyhydrochlorination of methane to Me chloride and its subsequent conversion over zeolite to **gasoline**)

IT 7447-40-7, Potassium chloride, uses
RL: CAT (Catalyst use); USES (Uses)
(silica-supported, contg. metal chloride and lanthanum chloride; oxyhydrochlorination of methane)
IT 10099-58-8, Lanthanum chloride
RL: CAT (Catalyst use); USES (Uses)
(silica-supported, contg. metal chloride and potassium chloride; oxyhydrochlorination of methane)
IT 7439-92-1, Lead, uses 7440-02-0, Nickel, uses 7440-06-4, **Platinum**, uses 7440-22-4, Silver, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses
RL: CAT (Catalyst use); USES (Uses)
(silica-supported, contg. potassium chloride and lanthanum chloride; oxyhydrochlorination of methane)

L6 ANSWER 19 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1994:461322 CAPLUS
DN 121:61322
ED Entered STN: 06 Aug 1994
TI Method for reducing harmful emissions from a **diesel** engine equipped with a particulate trap
IN Peter-Hoblyn, Jeremy D.; Valentine, James M.; Epperly, William Robert
PA Platinum Plus, Inc., USA
SO PCT Int. Appl., 53 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C10L001-30
ICS F02B075-12; C07F015-00; C07F017-02
CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 59
FAN.CNT 15

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9411467	A1	19940526	WO 1993-US10928	19931110
	W: AU, CA, CZ, FI, HU, JP, KP, KR				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	CA 2149035	AA	19940526	CA 1993-2149035	19931110
	AU 9456021	A1	19940608	AU 1994-56021	19931110
	EP 668899	A1	19950830	EP 1994-901430	19931110
	EP 668899	B1	20000920		
	R: AT, BE, DE, DK, ES, FR, GB, GR, IE, IT, NL, PT, SE				
	JP 08503508	T2	19960416	JP 1993-512366	19931110
	AT 196496	E	20001015	AT 1994-901430	19931110
	ES 2152300	T3	20010201	ES 1994-901430	19931110
	PT 668899	T	20010228	PT 1994-901430	19931110
	US 6051040	A	20000418	US 1997-978687	19971126
	GR 3035104	T3	20010330	GR 2000-402792	20001218
PRAI	US 1992-973913	A	19921110		
	US 1993-3245	A	19930111		
	US 1988-291245	B1	19881228		
	US 1991-794329	B2	19911112		
	US 1991-808435	B2	19911216		
	US 1993-89838	B1	19930712		
	WO 1993-US10928	W	19931110		
	US 1995-518251	B1	19950823		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 9411467	ICM	C10L001-30
	ICS	F02B075-12; C07F015-00; C07F017-02

WO 9411467 ECLA B01D053/94K4; C10L010/02; C10L010/06; F01N003/023; F01N003/029; F01N003/037; F01N003/20D; F02B051/02; F02D035/00D6; C10L001/10; C10L001/14; C10L001/30B
US 6051040 ECLA B01D053/94K4; F01N003/023; F01N003/035; F01N003/037; F02B051/02; F02D019/12; F02D035/00D6; C10L001/10; C10L010/06

AB A method to improve the operation of a **diesel** trap through the use of a fuel additive comprising fuel-sol. compns. of **platinum** group metal in effective amts. to lower the emissions of unburned hydrocarbons and carbon monoxide from the trap. The catalyst is selective and reduces the oxidn. of SO2 to SO3. The **platinum** group metal compns. are preferably added in amts. effective to provide concns. of the metal in the fuel of <1 part per million (ppm). Lithium and/or sodium compns. can be used in amts. effective to reduce the trap regeneration temp., e.g. concns. to provide ~1 to 100 ppm lithium metal, and/or 1 to 30 ppm sodium metal.

ST pollution control **diesel** engine particulate trap; regeneration **diesel** engine particulate trap; **platinum** metal complex **diesel** additive; emission redn **platinum** complex **diesel**

IT Fuels, **diesel**
(additives for, **platinum**-group metal complexes as, for reduced particulate emissions)

IT Air pollution
(by particulates, from **diesel** engine emissions, redn. of, method and combustion improvers for)

IT **Platinum**-group metals
RL: USES (Uses)
(complexes, combustion improvers, for **diesel** fuels, with reduced particulate emissions)

IT Hydrocarbons, miscellaneous
RL: MSC (Miscellaneous)
(control of, in **diesel** exhaust gases, **platinum** -group metal fuel additive and particulate trap for)

IT Combustion
(of **diesel** fuels, improver additives for, **platinum** -group metal complexes as)

IT Catalysts and Catalysis
(**platinum**-group metal, for **diesel** exhaust gas treatment)

IT Exhaust gases
(**diesel**, control of, **platinum**-group metal fuel additive and particulate trap for)

IT Engines
(**diesel**, particulate trap for, regeneration of)

IT **Platinum**-group metal compounds
RL: USES (Uses)
(**organometallic** compds., combustion improvers, for **diesel** fuels, with reduced particulate emissions)

IT 7439-89-6D, Iron, compds. 7439-93-2D, Lithium, compds. 7439-96-5D, **Manganese**, compds. 7440-09-7D, Potassium, compds. 7440-23-5D, Sodium, compds. 7440-45-1D, **Cerium**, compds. 7440-50-8D, Copper, compds.
RL: CAT (Catalyst use); USES (Uses)
(catalyst, fuel additive, for emission control in **diesel** engine equipped with particulate trap)

IT 11104-93-1, Nitrogen oxide, miscellaneous
RL: MSC (Miscellaneous)
(control of, in **diesel** exhaust gases, **platinum** -group metal fuel additive and particulate trap for)

IT 630-08-0, Carbon monoxide, miscellaneous
RL: MSC (Miscellaneous)
(control of, in **diesel** exhaust gases, **platinum** -group metal fuel additive and trap for)

IT 7446-11-9P, Sulfur trioxide, preparation
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, control of, in **diesel** exhaust gas, **platinum**-group metal fuel additive and particulate trap for)
IT 7446-09-5, Sulfur dioxide, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidn. of, control of, in **diesel** exhaust gas, **platinum**-group metal fuel additive and particulate trap for)

L6 ANSWER 20 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1993:584607 CAPLUS
DN 119:184607
ED Entered STN: 30 Oct 1993
TI Method for reducing particulate emissions from a **diesel** engine with **organometallic platinum** group metal coordination composition
IN Peter-Hoblyn, Jeremy D.; Valentine, James M.; Epperly, W. Robert; Sprague, Barry N.; Kelso, Danny T.
PA Platinum Plus, Inc., USA
SO PCT Int. Appl., 29 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C10L001-30
ICS C07F015-00
CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 59
FAN.CNT 15

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9312207	A1	19930624	WO 1992-US10819	19921214
	W: AU, CA				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	AU 9333368	A1	19930719	AU 1993-33368	19921214
	US 6051040	A	20000418	US 1997-978687	19971126
PRAI	US 1991-808435	A	19911216		
	US 1988-291245	B1	19881228		
	US 1991-794329	B2	19911112		
	WO 1992-US10819	A	19921214		
	US 1993-3245	B2	19930111		
	US 1993-89838	B1	19930712		
	US 1995-518251	B1	19950823		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 9312207	ICM	C10L001-30
	ICS	C07F015-00
US 6051040	ECLA	B01D053/94K4; F01N003/023; F01N003/035; F01N003/037; F02B051/02; F02D019/12; F02D035/00D6; C10L001/10; C10L010/06

AB A method for regenerating a **diesel** engine particulate trap comprises (a) providing a **diesel** engine having a particulate trap which collects particulates from the exhaust of the engine and (b) firing the engine with a fuel mixed therein with an additive which comprises a fuel-sol., **organometallic** Pt-group metal coordination compn. The compn. (1) is resistant to breakdown under ambient temps., (2) is substantially free of P, As, Sb, or halogens, and (3) has a partition ratio sufficient to maintain preferential soly. in the fuel.
ST regeneration **diesel** engine particulate trap; **platinum** metal complex **diesel** additive; emission redn **platinum** complex **diesel**
IT Fuels, **diesel**
(additives for, **platinum**-group metal complexes as, for

reduced particulate emissions)
IT Air pollution
(by particulates, from **diesel** engine emissions, redn. of, method and combustion improvers for)
IT Combustion
(of **diesel** fuels, improver additives for, **platinum**-group metal complexes as)
IT **Platinum**-group metal compounds
RL: USES (Uses)
(complexes, combustion improvers, for **diesel** fuels, with reduced particulate emissions)
IT Engines
(**diesel**, particulate trap for, regeneration of)
IT **Platinum**-group metal compounds
RL: USES (Uses)
(**organometallic** compds., combustion improvers, for **diesel** fuels, with reduced particulate emissions)
IT 7782-44-7
RL: USES (Uses)
(combustion, of **diesel** fuels, improver additives for, **platinum**-group metal complexes as)
IT 629-39-0, Octyl nitrate
RL: USES (Uses)
(solvent, **diesel** fuels contg., combustion improvers in, **platinum**-group metal complexes as)

L6 ANSWER 21 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1993:584606 CAPLUS
DN 119:184606
ED Entered STN: 30 Oct 1993
TI Method for reducing pollution emissions from a **diesel** engine with **organometallic platinum**-group metal coordination composition
IN Peter-Hoblyn, Jeremy D.; Valentine, James M.; Epperly, W. Robert; Sprague, Barry N.; Kelso, Danny T.
PA Platinum Plus, Inc., USA
SO PCT Int. Appl., 30 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C10L001-30
ICS C07F015-00
CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 59
FAN.CNT 15

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9312206	A1	19930624	WO 1992-US10757	19921214
	W: AU, CA				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	US 5266083	A	19931130	US 1991-808436	19911216
	AU 9332777	A1	19930719	AU 1993-32777	19921214
	AU 674297	B2	19961219		
	EP 620842	A1	19941026	EP 1993-901333	19921214
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
PRAI	US 1991-808436	A	19911216		
	US 1988-291245	B1	19881228		
	US 1991-794329	B2	19911112		
	WO 1992-US10757	A	19921214		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES

WO 9312206 ICM C10L001-30
ICS C07F015-00

AB A method for reducing the emissions of NOx from a **diesel** engine without significant loss of fuel efficiency and without significant increases in CO and hydrocarbon emissions comprises prepg. a **diesel** engine such that its injection timing is set at a point sufficient to obtain redns. in the NOx emissions from the engine, and firing the **diesel** engine with a fuel having admixed therein an additive which comprises a fuel-sol., **organometallic** Pt-group metal coordination compn.

ST **diesel** fuel combustion improver; **platinum** group metal complex **diesel** additive; emission redn **diesel** fuel additive

IT Fuels, **diesel**
(additives for, **platinum**-group metal complexes as, for reduced pollution emissions)

IT Air pollution
(by nitrogen oxides, from **diesel** engine emissions, redn. of, method and combustion improvers for)

IT Combustion
(of **diesel** fuels, improver additives for, **platinum**-group metal complexes as)

IT **Platinum**-group metal compounds
RL: USES (Uses)
(complexes, combustion improvers, for **diesel** fuels, with reduced pollution emissions)

IT **Platinum**-group metal compounds
RL: USES (Uses)
(**organometallic** compds., combustion improvers, for **diesel** fuels, with reduced pollution emissions)

IT 7782-44-7
RL: USES (Uses)
(combustion, of **diesel** fuels, improver additives for, **platinum**-group metal complexes as)

IT 11104-93-1, Nitrogen oxide, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(emissions, redn. of, from **diesel** engines, method and combustion improvers for)

IT 629-39-0, Octyl nitrate
RL: USES (Uses)
(solvent, **diesel** fuels contg., combustion improvers in, **platinum**-group metal complexes as)

L6 ANSWER 22 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1993:584600 CAPLUS
DN 119:184600
ED Entered STN: 30 Oct 1993
TI Low-sulfur **diesel** fuels containing **organometallic** complexes
IN Daly, Daniel Timothy; Adams, Paul Ernest; Huang, Nai Zhong; Jolley, Scott Ted; Koch, Frederick William; Kolp, Christopher Jay; Stoldt, Stephen Howard; Walsh, Reed Huber; Denis, Richard Ascot; Dishong, Dennis Michael
PA Lubrizol Corp., USA
SO PCT Int. Appl., 180 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C10L001-30
ICS C10L001-14; C10L010-06
CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9220763	A1	19921126	WO 1992-US3178	19920415

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        W:  AU, BG, BR, CA, CS, FI, HU, JP, KR, NO, RO, RU
        RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE
     US 5376154          A     19941227    US 1991-753517          19910903
     AU 9221753          A1    19921230    AU 1992-21753           19920415
     AU 650996           B2    19940707
     EP 539572           A1    19930505    EP 1992-912902          19920415
        R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, MC, NL, SE
     BR 9205278          A     19930727    BR 1992-5278            19920415
     JP 05508438         T2    19931125    JP 1993-500032          19920415
     NO 9300079          A     19930111    NO 1993-79              19930111
PRAI US 1991-699424      A     19910513
     US 1991-753517      A     19910903
     WO 1992-US3178      A     19920415
CLASS
 PATENT NO.      CLASS  PATENT FAMILY CLASSIFICATION CODES
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 WO 9220763      ICM    C10L001-30
                 ICS    C10L001-14; C10L010-06
 US 5376154      ECLA   C10L001/14; C10L001/30A; C10L010/06
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AB Low-S **diesel** fuels useful for engines equipped with exhaust system particulate traps contain an effective amt. of an **organometallic** complex to lower the ignition temp. of exhaust particles collected in the trap. The S content of these fuels is <0.1 wt.%, preferably <0.05 wt.%. The **organometallic** complex is sol. or stably dispersible in the **diesel** fuel and is derived from (1) an org. compd. contg. ≥2 functional groups attached to a hydrocarbon linkage and (2) a metal reactant capable of forming a complex with the org. compd. (1), the metal being any metal capable of reducing the ignition temp. of the exhaust particles. The functional groups include (:)X, XR, NR2, NO2, (:)NR, (:)NXR, (:)NR1XR, N(R)[R1(R)]aR, P(XR)(X)XR, P(R)(X)XR, CN, N(:)NR, and N(:)CR2, where X = O or S, R = H or hydro carbyl, R1 = hydrocarbylene or hydrocarbylidene, and a = 0-10. Useful metals include Na, K, Mg, Ca, Sr, Ba, Ti, Zr, V, Cr, Mo, Mn, Fe, Co, Cu, Zn, B, Pb, Sb, and ≥2 of their mixts.

ST **diesel** fuel **organometallic** complex additive; copper **organometallic** complex **diesel** fuel; engine trap low sulfur **diesel**

IT Schiff bases
RL: USES (Uses)
(antioxidants, for low-sulfur **diesel** fuels contg. **organometallic** complexes)

IT Fuels, **diesel**
(**organometallic** complexes for, low-sulfur)

IT Oximes
RL: USES (Uses)
(aryl, hydroxy, antioxidants, for low-sulfur **diesel** fuels contg. **organometallic** complexes)

IT Naphthenic acids, compounds
RL: PREP (Preparation)
(copper salts, in prepn. of copper complexes, for low-sulfur **diesel** fuels)

IT Amines, compounds
RL: USES (Uses)
(dicoco alkyl, reaction products, with glycidol and carbon disulfide, copper complexes, additives, for low-sulfur **diesel** fuels)

IT Polyamines
RL: USES (Uses)
(polyethylene-, reaction products, with polyisobutenylsuccinic anhydride, copper complexes, additives, for low-sulfur **diesel** fuels)

IT Amines, uses
RL: USES (Uses)
(N-(C12-18 and C14-18-unsatd. alkyl)trimethylenedi-, reaction products with diethyloxalate, copper complexes, additives, for low-sulfur

diesel fuels)

IT Amines, compounds
RL: USES (Uses)
(N-coco alkyltrimethylenedi-, reaction products, with salicylaldehyde, copper complexes, additives, for low-sulfur **diesel** fuels)

IT Amines, compounds
RL: USES (Uses)
(N-tallow alkyltrimethylenedi-, reaction products, with formaldehyde and heptylphenol, copper complexes, additives, for low-sulfur **diesel** fuels)

IT 75-15-0D, Carbon disulfide, reaction products with glycidol and Armeen 2C, copper complexes 75-56-9D, reaction products with tert-dodecyl mercaptan and dodecylsuccinic anhydride, copper complexes 88-75-5D, o-Nitrophenol, reaction products with formaldehyde and Duomeen O, copper complexes 90-02-8D, reaction products with Duomeen O, copper complexes 90-02-8D, reaction products with Duomeen T, copper complexes 95-55-6D, o-Aminophenol, p-polyisobutenyl derivs., reaction products with benzaldehyde, copper complexes 95-92-1D, Diethyloxalate, reaction products with Duomeen O, copper complexes 100-52-7D, Benzaldehyde, reaction products with ethylenediamine, polyisobutenylsuccinic anhydride and polyamine bottoms, copper complex 105-83-9D, 3,3'-Diamino-N-methyldipropylamine, reaction products with p-heptylphenol and formaldehyde, copper complexes 107-15-3D, 1,2-Ethanediamine, reaction products with tetrapropylene phenol and formaldehyde, copper complexes 107-15-3D, 1,2-Ethanediamine, reaction products with p-heptylphenol and formaldehyde, copper complexes 107-22-2D, Glyoxal, reaction products with hydroxylamine hydrochloride and Armeen OL, copper complexes 108-30-5D, polyisobutenyl-, reaction products with benzaldehyde ethylenediamine, and polyamine bottoms, copper complexes 109-73-9D, Butylamine, reaction products with propylene tetramer phenol and formaldehyde, copper complexes 109-83-1D, N-Methylethanolamine, reaction products with p-heptylphenol and formaldehyde, copper complexes 111-33-1D, reaction products with p-heptylphenol and formaldehyde, copper complexes 111-46-6D, Diethylene glycol, reaction products with dodecylsuccinic anhydride, copper complexes 111-92-2D, Dibutylamine, reaction products with carbon disulfide and methylene glytaronitrile, copper complexes 111-94-4D, Bis(2-cyanoethyl)amine, reaction products with tetrapropylene phenol and formaldehyde, copper complexes 112-57-2D, Tetraethylenepentamine, reaction products with p-heptylphenol and formaldehyde, copper complexes 112-62-9D, Methyl oleate, reaction products with hydroxylamine hydrochloride, copper complexes 112-90-3D, Armeen OL, reaction products with 8-hydroxyquinone and formaldehyde copper complexes 118-92-3D, Anthranilic acid, reaction products with dodecylsuccinic anhydride, copper complexes 118-93-4D, reaction products with Duomeen T, copper complexes 141-43-5D, Ethanolamine, reaction products with propylenetetramer phenol and formaldehyde, copper complexes 148-24-3D, 8-Quinolinol, reaction products with Armeen OL and formaldehyde, copper complexes 298-12-4D, reaction products with Armeen OL, copper complexes 765-34-4D, Glycidal, reaction products with carbon disulfide and Armeen 2C, copper complexes 1572-52-7D, 2,4-Dicyano-1-butene, reaction products with carbon disulfide and Duoneen O, copper complexes 1987-50-4D, P-Heptylphenol, reaction products with formaldehyde and Duomeen T, copper complexes 2561-85-5D, Dodecylsuccinic anhydride, reaction products with tert-dodecyl mercaptan and propylene oxide, copper complexes 4553-62-2D, reaction products with carbon disulfide and di-Bu amine, copper complexes 5470-11-1D, Hydroxylamine hydrochloride, reaction products with glyoxal and Armeen OL 10043-35-3D, Boric acid (H3BO3), reaction products with polyisobutenylsuccinic anhydride and polyamine bottoms, copper complexes 10545-99-0D, Sulfur dichloride, reaction products with tetrapropylene phenol, copper complexes 25103-58-6D, tert-Dodecyl mercaptan, reaction products with propylene oxide and dodecylsuccinic anhydride, copper complexes 42343-07-7D,

copper complexes 57427-55-1D, nitro derivs., copper complexes 57427-55-1D, Tetrapropylene phenol, reaction products with formaldehyde and ethylenediamine, copper complexes 59351-70-1D, 7-Dodecyl-8-hydroxyquinoline, copper complexes 150440-45-2D, copper complexes
RL: USES (Uses)
(additives, for low-sulfur **diesel** fuels)

IT 79-74-3, 2,5-Di-tert-amylhydroquinone 88-26-6 90-30-2, N-PHenyl-α-naphthylamine 90-66-4 92-84-2, Phenothiazine 96-66-2, 4,4'-Thiobis(2-methyl-6-tert-butylphenol) 98-29-3, 4-Tert-Butylcatechol 101-61-1, Tetramethyldiaminodiphenylmethane 118-82-1, 4,4'-Methylenebis(2,6-di-tert-butylphenol) 118-92-3, Anthranilic acid 124-22-1, 1-Dodecanamine 128-37-0, 2,6-Di-tert-butyl-4-methylphenol, uses 135-88-6, Phenyl-β-naphthylamine 4066-02-8, 2,2'-Methylenebis(4-methyl-6-cyclohexylphenol) 15233-47-3 36878-20-3, Dinonyldiphenylamine 41063-39-2 51366-53-1 52829-07-9, Bis(2,2,6,6-tetramethyl-4-piperidinyl)sebacate 60029-65-4 62529-18-4 148797-90-4 148797-91-5 149646-58-2
RL: USES (Uses)
(antioxidant, for low-sulfur **diesel** fuels contg. **organometallic** complexes)

IT 60-00-4D, Ethylenediaminetetraacetic acid, derivs. 92-84-2D, Phenothiazine, alkylated derivs.
RL: USES (Uses)
(antioxidants, for low-sulfur **diesel** fuels contg. **organometallic** complexes)

IT 94-67-7D, Salicylaldoxime, polyisobutenyl derivs., **organometallic** complexes 94-91-7 94-93-9 779-84-0, N-Salicylideneaniline 16716-56-6D, **organometallic** complexes 17255-48-0 37339-32-5D, 2-Hydroxy-5-nonylbenzophenoneoxime, **organometallic** complexes 50849-47-3D, 5-Nonylsalicylaldoxime, **organometallic** complexes 59661-88-0D, **organometallic** complexes 93968-73-1 116591-27-6D, **organometallic** complexes 148780-10-3D, **organometallic** complexes 149646-56-0D, **organometallic** complexes 149646-57-1D, **organometallic** complexes 150216-26-5 150238-57-6D, **organometallic** complexes
RL: USES (Uses)
(for low-sulfur **diesel** fuels, with exhaust particulate traps)

IT 100-63-0, Phenylhydrazine 108-24-7, Acetic anhydride 112-30-1, 1-Decanol 123-05-7, 2-Ethylhexanal 142-71-2, Cupric acetate 10039-54-0, Hydroxylamine sulfate 28675-17-4, Dodecylaniline
RL: USES (Uses)
(in prepn. of copper complex additives, for low-sulfur **diesel** fuels)

IT 142-71-2, Copper acetate 7492-68-4, Copper carbonate 20543-04-8, Cu CemAll 59351-70-1, 7-Dodecyl-8-hydroxyquinoline
RL: USES (Uses)
(in prepn. of copper complexes, for low-sulfur **diesel** fuels)

IT 50-00-0, Formaldehyde, uses
RL: USES (Uses)
(in prepn. of **organometallic** complexes, for low-sulfur **diesel** fuels)

IT 7439-89-6, Iron, uses 7439-92-1, Lead, uses 7439-95-4, Magnesium, uses 7439-96-5, **Manganese**, uses 7439-98-7, Molybdenum, uses 7440-09-7, Potassium, uses 7440-23-5, Sodium, uses 7440-24-6, Strontium, uses 7440-32-6, Titanium, uses 7440-36-0, Antimony, uses 7440-39-3, Barium, uses 7440-42-8, Boron, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-62-2, Vanadium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 7440-70-2, Calcium, uses
RL: USES (Uses)
(**organometallic** complex prepn. from, for low-sulfur **diesel** fuels)

L6 ANSWER 23 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1993:476174 CAPLUS
DN 119:76174
ED Entered STN: 21 Aug 1993
TI Copper-containing **organometallic** complexes and concentrates and **diesel** fuels containing them
IN Kolp, Christopher Jay; Daly, Daniel Timothy; Huang, Nai Zhong; Koch, Frederick William; Jolley, Scott Ted; Stoldt, Stephen Howard; Walsh, Reed Huber; Denis, Richard Ascot
PA Lubrizol Corp., USA
SO PCT Int. Appl., 127 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C10L001-30
ICS C10L010-06; C10L001-14; C07F001-08
CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9220764	A1	19921126	WO 1992-US3179	19920415
	W: AU, BG, BR, CA, CS, FI, HU, JP, KR, NO, RO, RU				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE				
	US 5360459	A	19941101	US 1991-699051	19910513
	CN 1066677	A	19921202	CN 1992-102697	19920413
	CN 1049238	B	20000209		
	CA 2083832	AA	19921114	CA 1992-2083832	19920415
	AU 9222248	A1	19921230	AU 1992-22248	19920415
	AU 651488	B2	19940721		
	EP 539578	A1	19930505	EP 1992-914025	19920415
	EP 539578	B1	19960228		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, MC, NL, SE				
	BR 9205274	A	19930727	BR 1992-5274	19920415
	JP 05508439	T2	19931125	JP 1993-500033	19920415
	HU 64102	A2	19931129	HU 1993-60	19920415
	AT 134700	E	19960315	AT 1992-914025	19920415
	ES 2086751	T3	19960701	ES 1992-914025	19920415
	ZA 9203344	A	19930127	ZA 1992-3344	19920508
	NO 9300080	A	19930219	NO 1993-80	19930111
	US 5562742	A	19961008	US 1994-264405	19940623
PRAI	US 1991-699051		19910513		
	WO 1992-US3179		19920415		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 9220764	ICM	C10L001-30
	ICS	C10L010-06; C10L001-14; C07F001-08

OS MARPAT 119:76174
AB Cu-contg. **organometallic** complexes, which are useful for **diesel** fuels with engines equipped with exhaust system particulate traps, lower the ignition temp. of the exhaust particles collected in the trap. The Cu-contg. **organometallic** complex is sol. or stably dispersible in the **diesel** fuel and is derived from (1) an org. compd. contg. ≥2 functional groups attached to a hydrocarbon linkage, and (2) a Cu-contg. metal reactant capable of forming a complex with the org. compd. (1). The functional groups are (:)X, XR, NR2, NO2, (:)NR, (:)NXR, (:)NR1(XR), NR[R1N(R)]aR, P(XR)(X)XR, P(R)(X)XR, CN, N(:)NR, or N(:)CR2, where X = O or S, R = H or hydrocarbyl, R1 = hydrocarbylene or hydrocarbylidene, and a = 0-10. The Cu can be combined with ≥1 metals selected from Na, K, Mg, Ca, Sr, Ba, V, Cr, Mo, Fe, Co, Zn, B, Pb, Sb, Ti, Mn, and Zr.

ST **diesel** fuel **organometallic** copper complex

IT Fuels, **diesel**
(**organometallic** complexes for, copper-contg.)

IT Naphthenic acids, compounds
RL: PREP (Preparation)
(copper salts, in prepn. of **organometallic** complex additives, for **diesel** fuels)

IT Amines, compounds
RL: USES (Uses)
(dicoco alkyl, reaction products, with glycidol and carbon disulfide, copper complexes, additives, for **diesel** fuels)

IT Polyamines
RL: USES (Uses)
(polyethylene-, reaction products, with polyisobutyenylsuccinic anhydride, copper complexes, additives, for **diesel** fuels)

IT Amines, compounds
RL: USES (Uses)
(reaction products, with diethyloxalate, copper complexes, additives, for **diesel** fuels)

IT Amines, compounds
RL: USES (Uses)
(N-tallow alkyltrimethylenedi-, reaction products, with formaldehyde and heptylphenol, copper complexes, additives, for **diesel** fuels)

IT 75-15-0D, Carbon disulfide, reaction products with glycidol and Armean 2C, copper complexes 75-56-9D, Propylene oxide, reaction products with tert-dodecyl mercaptan and dodecylsuccinic anhydride, copper complexes 88-75-5D, o-Nitrophenol, reaction products with formaldehyde and Duomeen O2 copper complexes 95-92-1D, Diethyloxalate, reaction products with Duomeen O, copper complexes 105-83-9D, 3,3'-Diamino-N-methyldipropylamine, nitro derivs., copper complexes 107-15-3, Ethylenediamine, uses 107-22-2D, Glyoxal, reaction products with hydroxylamine hydrochloride and Armean OL, copper complexes 109-73-9D, Butylamine, reaction products with propylene tetramer phenol and formaldehyde, copper complexes 111-46-6D, Diethylene glycol, reaction products with tetrapropylene phenol, copper complexes 111-92-2D, Dibutylamine, reaction products with carbon disulfide, and methylene glytaronitrile, copper complexes 111-94-4D, Bis(2-cyanoethyl)amine, reaction products with tetrapropylene phenol and formaldehyde, copper complexes 112-57-2, Tetraethylenepentamine 112-62-9D, Methyl oleate, reaction products with hydroxylamine hydrochloride, copper complexes 112-90-3 118-92-3D, Anthranilic acid, reaction products with dodecylsuccinic anhydride, copper complexes 148-24-3D, 8-Quinolinol, reaction products with formaldehyde and Armeen OL, copper complexes 298-12-4D, Glyoxylic acid, reaction products with Armeen OL, copper complexes 765-34-4D, Glycidal, reaction products with carbondisulfide and Armeen 2C, copper complexes 1572-52-7D, reaction products with carbon disulfide and dibutylamines copper complexes 2561-85-5D, Dodecylsuccinic anhydride, reaction products with tert-dodecyl mercaptan andpropylene oxide, copper complexes 5470-11-1D, Hydroxylamine hydrochloride, reaction products with glyoxal and Armean OL 10545-99-0D, Sulfur dichloride, reaction products with tetrapropylene phenol, copper complexes 25103-58-6D, tert-Dodecylmercaptan, reaction products with propylene oxide and dodecylsuccinic anhydride, copper complexes 42343-07-7D, copper complexes 57427-55-1D, Tetrapropylene phenol, nitro derivs., copper complexes 96529-06-5D, nitro derivs., copper complexes
RL: USES (Uses)
(additives, for **diesel** fuels)

IT 10043-35-3D, Boric acid (H3BO3), reaction products with polyisobutylsuccinic anhydride and polyamine bottoms, copper complexes
RL: USES (Uses)
(additives, for low-sulfur **diesel** fuels)

IT 7439-89-6, Iron, uses 7439-92-1, Lead, uses 7439-95-4, Magnesium, uses 7439-96-5, **Manganese**, uses 7439-98-7, Molybdenum, uses 7440-09-7, Potassium, uses 7440-23-5, Sodium, uses 7440-24-6, Strontium, uses 7440-32-6, Titanium, uses 7440-36-0, Antimony, uses 7440-39-3, Barium, uses 7440-42-8, Boron, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-62-2, Vanadium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 7440-70-2, Calcium, uses
RL: USES (Uses)
(copper-contg. complex prepn. from, for **diesel** fuels)

IT 100-63-0, Phenyl hydrazine 104-76-7, 2-Ethylhexanol 108-24-7, Acetic anhydride 142-71-2, Cupric acetate 10039-54-0, Hydroxylamine sulfate 31114-86-0
RL: USES (Uses)
(in prepn. of copper complex additives, for low-sulfur **diesel** fuels)

IT 1987-50-4D, p-Heptyl phenol, reaction products with formaldehyde and Diomeen T, copper complexes 59351-70-1, 7-Dodecyl-8-hydroxyquinoline
RL: USES (Uses)
(in prepn. of copper complexes, for **diesel** fuels)

IT 50-00-0, Formaldehyde, uses 142-71-2, Copper acetate 1184-64-1, Copper carbonate
RL: USES (Uses)
(in prepn. of **organometallic** complex additives, for **diesel** fuels)

L6 ANSWER 24 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1992:625430 CAPLUS
DN 117:225430
ED Entered STN: 28 Nov 1992
TI Trace and minor element characterization of **diesel** soot
AU Docekal, B.; Krivan, V.; Pelz, N.
CS Sekt. Anal. Hoechstreinigung, Univ. Ulm, Ulm, W-7900, Germany
SO Fresenius' Journal of Analytical Chemistry (1992), 343(12), 873-8
CODEN: FJACES; ISSN: 0937-0633
DT Journal
LA English
CC 79-6 (Inorganic Analytical Chemistry)
Section cross-reference(s): 51, 59
AB Concns. of 20 trace and minor components, such as metals, nitrogen and sulfur, were detd. in representative **diesel** soot samples corresponding to various driving patterns of an old and a new type of Mercedes-Benz **diesel** engine for passenger cars. The samples were analyzed by instrumental neutron activation anal., and after decompn., by flame and graphite furnace at. absorption spectrometry. The content of sulfur was detd. by a method based on the formation of hydrogen sulfide and pptn. micro-titrimetry. The concns. of the elements Au, La, Sb, Sc, and V were at the sub-μg/g level; As, Ba, Cd, Co, Cr, Mn, Ni, and Se were at the lower μg/g level; and Ca, Cu, Fe, N, Na, Pb, S, and Zn ranged from the upper μg/g to lower percent levels. The emission of several elements was likely the result of different factors such as utilization of **organometallic** additives (Ca, Na, Zn) in **diesel** fuel or lubrication oil, contamination of **diesel** fuel by alkyllead compds., wear and corrosion of the engine and exhaust system parts. The concn. of elemental components in **diesel** soot, generally, varied with operating conditions, which affected fuel and oil consumption, combustion efficiency (soot prodn.), and mech. strain.
ST **diesel** soot analysis trace minor element; trace element detn **diesel** soot
IT Trace elements, analysis
RL: ANT (Analyte); ANST (Analytical study)
(detn. of, in **diesel** soot, by neutron activation and at. absorption spectrometry and micro-titrimetry)

IT Soot
(**diesel**, trace and minor element detn. in, by neutron activation and at. absorption spectrometry and micro-titrimetry)
IT Fuels, **diesel**
(soot from, trace and minor element detn. in, by neutron activation and at. absorption spectrometry and micro-titrimetry)
IT Lubricating oils
(trace and minor element detn. in, by neutron activation and at. absorption spectrometry and micro-titrimetry)
IT 7439-89-6, Iron, analysis 7439-91-0, Lanthanum, analysis 7439-92-1, Lead, analysis 7439-96-5, **Manganese**, analysis 7440-02-0, Nickel, analysis 7440-20-2, Scandium, analysis 7440-23-5, Sodium, analysis 7440-36-0, Antimony, analysis 7440-38-2, Arsenic, analysis 7440-39-3, Barium, analysis 7440-43-9, Cadmium, analysis 7440-47-3, Chromium, analysis 7440-48-4, Cobalt, analysis 7440-50-8, Copper, analysis 7440-57-5, Gold, analysis 7440-62-2, Vanadium, analysis 7440-66-6, Zinc, analysis 7440-70-2, Calcium, analysis 7704-34-9, Sulfur, analysis 7727-37-9, Nitrogen, analysis 7782-49-2, Selenium, analysis
RL: ANT (Analyte); ANST (Analytical study)
(detn. of, in **diesel** soot)

L6 ANSWER 25 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1992:135528 CAPLUS
DN 116:135528
ED Entered STN: 03 Apr 1992
TI Performance-oriented packaging standards; changes to classification, hazard communication, packaging and handling requirements based on UN standards and agency initiative
CS United States Dept. of Transportation, Washington, DC, 20590-0001, USA
SO Federal Register (1990), 55(246), 52402-729, 21 Dec 1990
CODEN: FEREAC; ISSN: 0097-6326
DT Journal
LA English
CC 59-6 (Air Pollution and Industrial Hygiene)
AB The hazardous materials regulations under the Federal Hazardous Materials Transportation Act are revised based on the United Nations recommendations on the transport of dangerous goods. The regulations cover the classification of materials, packaging requirements, and package marking, labeling, and shipping documentation, as well as transportation modes and handling, and incident reporting. Performance-oriented stds. are adopted for packaging for bulk and nonbulk transportation, and SI units of measurement generally replace US customary units. Hazardous material descriptions and proper shipping names are tabulated together with hazard class, identification nos., packing group, label required, special provisions, packaging authorizations, quantity limitations, and vessel stowage requirements.
ST hazardous chem transport packaging
IT Infection
(agents, packaging and transport of, stds. for)
IT Resin acids and Rosin acids
RL: USES (Uses)
(aluminum salts, packaging and transport of, stds. for)
IT Alkaline earth metals
RL: USES (Uses)
(amalgams, packaging and transport of, stds. for)
IT Alkali metals, miscellaneous
RL: MSC (Miscellaneous)
(amalgams, packaging and transport of, stds. for)
IT Dyes
(coal tar, packaging and transport of, stds. for)

IT Packaging materials
(for hazardous material transport, stds. for)
IT Standards, legal and permissive
(for hazardous material transportation)
IT Bromates
Chlorites
RL: USES (Uses)
(inorg., packaging and transport of, stds. for)
IT Appliances
(life-saving, packaging and transport of, stds. for)
IT Borates
RL: USES (Uses)
(mixts. contg. chlorates, packaging and transport of, stds. for)
IT Chlorates
RL: USES (Uses)
(mixts. contg., packaging and transport of, stds. for)
IT Diazonium compounds
RL: USES (Uses)
(nitrates, packaging and transport of, stds. for)
IT Paper
(oiled, packaging and transport of, stds. for)
IT Adhesives
Alcoholic beverages
Ammunition
Antifreeze substances
Bactericides, Disinfectants, and Antiseptics
Batteries, primary
Blasting gelatin
Bombs (explosives)
Carbon paper
Cartridges
Castor bean
Coating materials
Corrosive substances
Cotton
Creosote
Detonators
Dyes
Dynamite
Electric fuses
Exothermic materials
Explosives
Flavoring materials
Flue dust
Fuel cells
Fuel oil
Fuels, diesel
Fuels, jet aircraft
Fusel oil
Fuses, explosives
Gas oils
Hay
Herbicides
Igniters and Lighters
Insecticides
Lacrimators
Magnetic substances
Matches
Oxidizing agents
Perfumes
Pesticides
Petroleum products

Pharmaceuticals
Photoelectric devices
Poisons
Primers, explosive
Projectiles
Pyrophoric substances
Pyrotechnic compositions
Radioactive substances
Refrigerating apparatus
Rockets
Shale oils
Solvent naphtha
Sprays
Straw
Textiles
Thermoelectric devices
Torpedoes (weapons)
Turpentine
Wood preservatives
(packaging and transport of, stds. for)

IT Alcohols, miscellaneous
Aldehydes, miscellaneous
Alkali metal alloys, base
Alkali metals, miscellaneous
Alkaline earth alloys, base
Alkaline earth metals
Alkaloids, miscellaneous
Amines, miscellaneous
Arsenates
Arsenites
Asbestos
Asphalt
Bases, miscellaneous
Charcoal
Coal
Coke
Cyanates
Cyanides, miscellaneous
Fibers
Fluorides, miscellaneous
Gasoline
Helium-group gases, miscellaneous
Hydrides
Hypochlorites
Kerosine
Ketones, uses
Ligroine
Metals, miscellaneous
Naphtha
Natural gas
Natural gas condensates
Nitrates, miscellaneous
Nitrites
Perchlorates
Permanganates
Peroxides, uses
Petroleum
Petroleum gases, liquefied
Polyamines
Polyesters, miscellaneous
Rosin oil
Selenates

Selenites
Sulfonic acids, miscellaneous
Tar
Terpenes and Terpenoids, miscellaneous
Thiols, uses
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(packaging and transport of, stds. for)

IT Refrigeration
(agents, packaging and transport of, stds. for)

IT Sulfonic acids, miscellaneous
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(alkane, packaging and transport of, stds. for)

IT Phenols, miscellaneous
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(alkyl, packaging and transport of, stds. for)

IT Alkali metals, compounds
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(amides, packaging and transport of, stds. for)

IT Fertilizers
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(ammonium nitrate, packaging and transport of, stds. for)

IT **Gasoline** additives
(antiknock, packaging and transport of, stds. for)

IT Sulfonic acids, miscellaneous
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(arene, packaging and transport of, stds. for)

IT Nitro compounds
RL: USES (Uses)
(aryl, potassium salts, packaging and transport of, stds. for)

IT Nitro compounds
RL: USES (Uses)
(aryl, sodium salts, packaging and transport of, stds. for)

IT **Fuels**
(aviation, packaging and transport of, stds. for)

IT Propellants
(black powder, packaging and transport of, stds. for)

IT Hydraulic fluids
(brake, packaging and transport of, stds. for)

IT Flours and Meals
(cakes, packaging and transport of, stds. for)

IT Resin acids and Rosin acids
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(calcium salts, packaging and transport of, stds. for)

IT Essential oils
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(camphor, packaging and transport of, stds. for)

IT Silanes
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(chloro, packaging and transport of, stds. for)

IT Solvents
(cleaning, packaging and transport of, stds. for)

IT Tar
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering

or chemical process); BIOL (Biological study); PROC (Process)
(coal, packaging and transport of, stds. for)
IT **Fuel** gases
(coal gas, packaging and transport of, stds. for)
IT Naphthenic acids, compounds
Resin acids and Rosin acids
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(cobalt salts, packaging and transport of, stds. for)
IT Coconut
(copra, packaging and transport of, stds. for)
IT Asbestos
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(crocidolite, packaging and transport of, stds. for)
IT Petroleum products
(distillates, packaging and transport of, stds. for)
IT Rockets
(engines, packaging and transport of, stds. for)
IT Fire
(extinguishers, packaging and transport of, stds. for)
IT Pyrotechnic compositions
(fireworks, packaging and transport of, stds. for)
IT Pyrotechnic compositions
(flare, packaging and transport of, stds. for)
IT Silicates, miscellaneous
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(fluoro-, packaging and transport of, stds. for)
IT **Gasoline**
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(gasohol, packaging and transport of, stds. for)
IT Ammunition
(grenades, packaging and transport of, stds. for)
IT Asbestos
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(grunerite, packaging and transport of, stds. for)
IT Sulfites
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(hydrogen, packaging and transport of, stds. for)
IT Organic compounds, miscellaneous
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(iodyl, packaging and transport of, stds. for)
IT Group VIII elements
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(iron-group, packaging and transport of, stds. for)
IT Air
Corrosive substances
(liq., packaging and transport of, stds. for)
IT Gases
(liquefied, packaging and transport of, stds. for)
IT Resin acids and Rosin acids
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(**manganese** salts, packaging and transport of, stds. for)
IT Castor bean
Fish

(meal, packaging and transport of, stds. for)
IT **Organometallic** compounds
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(metal alkyls, packaging and transport of, stds. for)
IT Explosives
(mines, packaging and transport of, stds. for)
IT Carbohydrates and Sugars, miscellaneous
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(nitro, packaging and transport of, stds. for)
IT Aromatic compounds
RL: USES (Uses)
(nitro, potassium salts, packaging and transport of, stds. for)
IT Aromatic compounds
RL: USES (Uses)
(nitro, sodium salts, packaging and transport of, stds. for)
IT Fertilizers
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(nitrogen, packaging and transport of, stds. for)
IT Peroxides, miscellaneous
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(org., packaging and transport of, stds. for)
IT Coating materials
(paints, packaging and transport of, stds. for)
IT Essential oils
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(pine, packaging and transport of, stds. for)
IT Inks
(printing, packaging and transport of, stds. for)
IT Matches
(safety, packaging and transport of, stds. for)
IT Alkaloids, compounds
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(salts, packaging and transport of, stds. for)
IT Containers
(shipping, for hazardous material transport, stds. for)
IT Pyrotechnic compositions
(signal rockets, packaging and transport of, stds. for)
IT Pyrotechnic compositions
(smoke-generating, packaging and transport of, stds. for)
IT Propellants
(smokeless, packaging and transport of, stds. for)
IT Pharmaceutical dosage forms
(tinctures, packaging and transport of, stds. for)
IT Ammunition
Pyrotechnic compositions
(tracers, packaging and transport of, stds. for)
IT Resin acids and Rosin acids
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(zinc salts, packaging and transport of, stds. for)
IT 64-17-5
RL: OCCU (Occurrence)
(alcoholic beverages, packaging and transport of, stds. for)
IT 50-00-0, Formaldehyde, miscellaneous 54-11-5, Nicotine 54-11-5D, Nicotine, compds. 55-63-0, Nitroglycerin 55-68-5, Phenylmercuric nitrate 56-18-8, 3,3'-Iminodipropylamine 56-23-5, miscellaneous

56-38-2, Parathion 57-06-7, Allyl isothiocyanate 57-14-7 57-24-9D, Strychnine, salts 60-00-4, EDTA, miscellaneous 60-24-2 60-29-7, Diethyl ether, miscellaneous 60-34-4, Methylhydrazine 60-57-1, Dieldrin 62-38-4, Phenylmercuric acetate 62-53-3, Aniline, miscellaneous 62-74-8, Sodium fluoroacetate 64-17-5, Ethanol, miscellaneous 64-18-6, Formic acid, miscellaneous 64-18-6D, Formic acid, chloro derivs. 64-19-7, Acetic acid, miscellaneous 64-67-5, Diethyl sulfate 66-25-1, Hexaldehyde 67-56-1, Methanol, miscellaneous 67-63-0, Isopropanol, miscellaneous 67-64-1, Acetone, miscellaneous 67-66-3, Chloroform, miscellaneous 68-11-1, Thioglycolic acid, miscellaneous 68-12-2, N,N-Dimethylformamide, miscellaneous 70-11-1, Phenacyl bromide 70-30-4, Hexachlorophene 71-23-8, n-Propanol, miscellaneous 71-41-0, 1-Pentanol, miscellaneous 71-43-2, Benzene, miscellaneous 71-55-6, 1,1,1-Trichloroethane 74-82-8, Methane, miscellaneous 74-83-9, miscellaneous 74-84-0, Ethane, miscellaneous 74-85-1, Ethylene, miscellaneous 74-86-2, Acetylene, miscellaneous 74-87-3, Methyl chloride, miscellaneous 74-88-4, Methyl iodide, miscellaneous 74-89-5, Methylamine, miscellaneous 74-90-8, Hydrogen cyanide, miscellaneous 74-93-1, Methyl mercaptan, miscellaneous 74-95-3, Dibromomethane 74-96-4, Ethyl bromide 74-97-5, Bromochloromethane 74-98-6, Propane, miscellaneous 75-00-3, Ethyl chloride 75-01-4, miscellaneous 75-02-5, Vinyl fluoride 75-04-7, Ethylamine, miscellaneous 75-05-8, Methyl cyanide, miscellaneous 75-07-0, Acetaldehyde, miscellaneous 75-08-1, Ethyl mercaptan 75-09-2, Dichloromethane, miscellaneous 75-15-0, Carbon disulfide, miscellaneous 75-16-1, Methyl magnesium bromide 75-18-3, Dimethyl sulfide 75-19-4, Cyclopropane 75-20-7, Calcium carbide 75-21-8 75-21-8, Ethylene oxide, miscellaneous 75-25-2, Bromoform 75-26-3, 2-Bromopropane 75-28-5, Isobutane 75-28-5D, Isobutane, mixts. 75-29-6, 2-Chloropropane 75-31-0, Isopropylamine, miscellaneous 75-33-2, Isopropyl mercaptan 75-34-3, 1,1-Dichloroethane 75-35-4, miscellaneous 75-36-5, Acetyl chloride 75-38-7, 1,1-Difluoroethylene 75-39-8, Acetaldehyde ammonia 75-43-4, Dichloromonofluoromethane 75-44-5, Phosgene 75-45-6, Chlorodifluoromethane 75-46-7, Trifluoromethane 75-50-3, Trimethylamine, miscellaneous 75-52-5, Nitromethane, miscellaneous 75-54-7, Methyldichlorosilane 75-55-8, Propylenimine 75-56-9, Propylene oxide, miscellaneous 75-59-2, Tetramethylammonium hydroxide 75-60-5, Cacodylic acid 75-61-6, Dibromodifluoromethane 75-63-8 75-71-8, Dichlorodifluoromethane 75-72-9, Chlorotrifluoromethane 75-73-0, Tetrafluoromethane 75-76-3, Tetramethylsilane 75-77-4, Trimethylchlorosilane, miscellaneous 75-78-5, Dimethyldichlorosilane 75-79-6, Methyltrichlorosilane 75-83-2 75-86-5, Acetone cyanohydrin 75-87-6, Chloral 75-91-2, tert-Butyl hydroperoxide 75-94-5, Vinyltrichlorosilane 76-01-7, Pentachloroethane 76-02-8, Trichloroacetyl chloride 76-03-9, properties 76-05-1, Trifluoroacetic acid, miscellaneous 76-06-2, Chloropicrin 76-06-2D, Chloropicrin, mixts. 76-15-3 76-16-4, Hexafluoroethane 76-19-7, Octafluoropropane 76-22-2, Camphor 77-47-4, Hexachlorocyclopentadiene 77-73-6 77-78-1, Dimethyl sulfate 78-00-2, Tetraethyl lead 78-10-4, Tetraethyl silicate 78-62-6, Dimethyldiethoxysilane 78-67-1, Azodiisobutyronitrile 78-76-2, 2-Bromobutane 78-78-4, Isopentane 78-79-5, Isoprene, miscellaneous 78-81-9, Isobutylamine 78-82-0, Isobutyronitrile 78-83-1, Isobutanol, miscellaneous 78-84-2, Isobutyraldehyde 78-85-3, Methacrylaldehyde 78-87-5, Propylene dichloride 78-89-7, Propylene chlorohydrin 78-90-0, 1,2-Propylenediamine 78-93-3, 2-Butanone, miscellaneous 78-94-4, Methyl vinyl ketone, miscellaneous 78-95-5, Monochloroacetone 79-01-6, Trichloroethylene, miscellaneous 79-03-8, Propionyl chloride 79-04-9, Chloroacetyl chloride 79-06-1, Acrylamide, miscellaneous 79-08-3, Bromoacetic acid 79-09-4, Propionic acid, miscellaneous 79-10-7, 2-Propenoic acid, miscellaneous 79-11-8, Chloroacetic acid, miscellaneous 79-20-9, Methyl acetate 79-21-0, Peroxyacetic acid

79-22-1 79-24-3, Nitroethane 79-29-8, 2,3-Dimethylbutane 79-30-1, Isobutyryl chloride 79-31-2, Isobutyric acid 79-36-7, Dichloroacetyl chloride 79-38-9 79-41-4, miscellaneous 79-42-5 79-43-6, Dichloroacetic acid, miscellaneous 79-44-7, Dimethylcarbamoyl chloride 80-10-4, Diphenyldichlorosilane 80-15-9, Cumene hydroperoxide 80-17-1, Benzene sulfohydrazide 80-47-7, p-Menthane hydroperoxide 80-51-3, Diphenyloxide-4,4'-disulfohydrazide 80-56-8, α-Pinene 80-62-6 81-15-2 82-71-3 85-44-9, 1,3-Isobenzofurandione 86-50-0, Azinphos methyl 87-68-3, Hexachlorobutadiene 87-90-1 88-17-5, 2-Trifluoromethylaniline 88-72-2, o-Nitrotoluene 88-73-3, o-Chloronitrobenzene 88-74-4, o-Nitroaniline 88-75-5, o-Nitrophenol 88-89-1 89-58-7, p-Nitroxylene 91-17-8, Decahydronaphthalene 91-20-3, Naphthalene, miscellaneous 91-20-3D, Naphthalene, diozonide derivs. 91-22-5, Quinoline, miscellaneous 91-59-8, β-Naphthylamine 91-66-7, N,N-Diethylaniline 92-52-4D, Biphenyl, chloro derivs. 92-52-4D, Biphenyl, halo derivs. 92-59-1, N-Ethyl-N-benzylaniline 92-87-5, Benzidine 93-58-3, Methyl benzoate 94-17-7, p-Chlorobenzoyl peroxide 94-36-0, Benzoyl peroxide, miscellaneous 95-48-7, miscellaneous 95-50-1, o-Dichlorobenzene 95-54-5, o-Phenylenediamine, miscellaneous 95-55-6, o-Aminophenol 95-80-7 95-85-2, 2-Amino-4-chlorophenol 96-12-8, Dibromochloropropane 96-22-0, Diethyl ketone 96-23-1 96-24-2, Glycerol α-monochlorohydrin 96-32-2, Methyl bromoacetate 96-33-3 96-34-4, Methyl chloroacetate 96-37-7, Methyl cyclopentane 96-41-3, Cyclopentanol 97-62-1, Ethyl isobutyrate 97-63-2 97-64-3, Ethyl lactate 97-72-3, Isobutyric anhydride 97-85-8, Isobutyl isobutyrate 97-86-9 97-88-1 97-95-0 97-96-1, 2-Ethylbutyraldehyde 98-00-0, Furfuryl alcohol 98-01-1, Furfural, miscellaneous 98-07-7, Benzotrichloride 98-08-8, Benzotrifluoride 98-09-9, Benzene sulfonyl chloride 98-12-4, Cyclohexyltrichlorosilane 98-13-5, Phenyltrichlorosilane 98-16-8, 3-Trifluoromethylaniline 98-82-8, Isopropylbenzene 98-83-9, miscellaneous 98-85-1, α-Methylbenzyl alcohol 98-87-3, Benzylidene chloride 98-88-4, Benzoyl chloride 98-94-2 98-95-3, Nitrobenzene, miscellaneous 99-08-1, m-Nitrotoluene 99-09-2, m-Nitroaniline 99-35-4, Trinitrobenzene 99-99-0, p-Nitrotoluene 100-00-5 100-01-6, p-Nitroaniline, miscellaneous 100-02-7, p-Nitrophenol, miscellaneous 100-17-4 100-34-5, Benzene diazonium chloride 100-36-7, N,N-Diethylethylenediamine
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(packaging and transport of, stds. for)

IT 100-37-8, Diethylaminoethanol 100-39-0, Benzyl bromide 100-41-4, Ethylbenzene, miscellaneous 100-42-5, miscellaneous 100-44-7, Benzyl chloride, miscellaneous 100-47-0, Benzonitrile, miscellaneous 100-50-5, 1,2,3,6-Tetrahydrobenzaldehyde 100-57-2, Phenylmercuric hydroxide 100-61-8, N-Methylaniline, miscellaneous 100-63-0, Phenylhydrazine 100-66-3, Anisole, miscellaneous 100-73-2, Acrolein dimer 101-25-7, N,N'-Dinitrosopentamethylenetetramine 101-68-8 101-77-9, 4,4'-Diaminodiphenyl methane 101-83-7, Dicyclohexylamine 102-69-2, Tripropylamine 102-70-5, Triallylamine 102-81-8, Dibutylaminoethanol 102-82-9, Tributylamine 103-65-1, n-Propylbenzene 103-69-5, N-Ethylaniline 103-71-9, Phenylisocyanate, miscellaneous 103-80-0, Phenylacetyl chloride 103-83-3, Benzyldimethylamine 104-15-4, Toluene sulfonic acid, miscellaneous 104-51-8, Butylbenzene 104-75-6, 2-Ethylhexylamine 104-78-9 104-90-5, 2-Methyl-5-ethylpyridine 105-36-2 105-37-3, Ethyl propionate 105-39-5, Ethyl chloroacetate 105-48-6, Isopropyl chloroacetate 105-54-4, Ethyl butyrate 105-56-6, Ethyl cyanoacetate 105-57-7, Acetal 105-58-8, Diethyl carbonate 105-64-6, Isopropyl peroxydicarbonate 105-74-8, Lauroyl peroxide 106-31-0, Butyric anhydride 106-44-5, p-Cresol, miscellaneous 106-46-7, p-Dichlorobenzene 106-50-3, p-Phenylenediamine, miscellaneous 106-51-4, 2,5-Cyclohexadiene-1,4-

dione, miscellaneous 106-63-8, Isobutyl acrylate 106-68-3, Ethyl amyl ketone 106-88-7, 1,2-Butylene oxide 106-89-8, miscellaneous 106-92-3, Allyl glycidyl ether 106-93-4, Ethylene dibromide 106-95-6, Allyl bromide, miscellaneous 106-96-7, 3-Bromopropyne 106-97-8, Butane, miscellaneous 106-97-8D, Butane, mixts. 106-99-0, 1,3-Butadiene, miscellaneous 107-00-6, Ethylacetylene 107-02-8, 2-Propenal, miscellaneous 107-05-1, Allyl chloride 107-06-2, Ethylene dichloride, miscellaneous 107-07-3, Ethylene chlorohydrin, miscellaneous 107-10-8, Propylamine, miscellaneous 107-11-9, Allylamine 107-12-0, Propionitrile 107-13-1, Acrylonitrile, miscellaneous 107-14-2, Chloroacetonitrile 107-15-3, Ethylenediamine, miscellaneous 107-18-6, Allyl alcohol, miscellaneous 107-19-7, Propargyl alcohol 107-20-0, Chloroacetaldehyde 107-25-5, Vinylmethyl ether 107-29-9, Acetaldehyde oxime 107-30-2, Methylchloromethyl ether 107-31-3, Methyl formate 107-37-9, Allyltrichlorosilane 107-49-3, Tetraethyl pyrophosphate 107-70-0 107-71-1, tert-Butyl peroxylacetate 107-72-2, Amyltrichlorosilane 107-81-3, 2-Bromopentane 107-82-4, 1-Bromo-3-methylbutane 107-87-9, Methyl propyl ketone 107-89-1, Aldol 107-92-6, Butyric acid, miscellaneous 108-01-0, Dimethylethanolamine 108-05-4, Acetic acid ethenyl ester, miscellaneous 108-09-8, 1,3-Dimethylbutylamine 108-10-1, Methyl isobutyl ketone 108-11-2, Methyl isobutyl carbinol 108-18-9, Diisopropylamine 108-20-3, Diisopropyl ether 108-21-4, Isopropyl acetate 108-22-5, Isopropenyl acetate 108-23-6, Isopropyl chloroformate 108-24-7, Acetic anhydride 108-31-6, 2,5-Furandione, miscellaneous 108-39-4, miscellaneous 108-45-2, m-Phenylenediamine, miscellaneous 108-46-3, Resorcinol, miscellaneous 108-67-8, miscellaneous 108-77-0 108-83-8, Diisobutyl ketone 108-84-9 108-86-1, Benzene, bromo-, miscellaneous 108-87-2, Methyl cyclohexane 108-88-3, Toluene, miscellaneous 108-90-7, Chlorobenzene, miscellaneous 108-91-8, Cyclohexylamine, miscellaneous 108-94-1, Cyclohexanone, miscellaneous 108-95-2, Phenol, miscellaneous 108-98-5, Phenyl mercaptan, miscellaneous 109-02-4 109-09-1, 2-Chloropyridine 109-13-7, tert-Butyl peroxyisobutyrate 109-52-4, Valeric acid, miscellaneous 109-53-5, Vinyl isobutyl ether 109-60-4, n-Propyl acetate 109-61-5, n-Propyl chloroformate 109-63-7, Boron trifluoride diethyl etherate 109-65-9, n-Butyl bromide 109-66-0, Pentane, miscellaneous 109-70-6, 1-Chloro-3-bromopropane 109-73-9, n-Butylamine, miscellaneous 109-74-0, Butyronitrile 109-77-3, Malononitrile 109-79-5, Butyl mercaptan 109-86-4, Ethylene glycol monomethyl ether 109-87-5, Methylal 109-89-7, Diethylamine, miscellaneous 109-90-0, Ethyl isocyanate 109-92-2, Vinyl ethyl ether 109-93-3, Divinyl ether 109-94-4, Ethyl formate 109-95-5, Ethyl nitrite 109-99-9, Tetrahydrofuran, miscellaneous 110-00-9, Furan 110-01-0, Tetrahydrothiophene 110-02-1, Thiophene 110-12-3, 5-Methylhexan-2-one 110-16-7, Maleic acid, miscellaneous 110-18-9 110-19-0 110-22-5, Diacetyl peroxide 110-43-0, Amyl methyl ketone 110-49-6 110-54-3, Hexane, miscellaneous 110-58-7, Amylamine 110-62-3, Valeraldehyde 110-66-7, Amyl mercaptan 110-68-9, N-Methylbutylamine 110-69-0, Butyraldoxime 110-71-4, 1,2-Dimethoxyethane 110-74-7, Propyl formate 110-78-1, n-Propyl isocyanate 110-80-5, Ethylene glycol monoethyl ether 110-82-7, Cyclohexane, miscellaneous 110-83-8, Cyclohexene, miscellaneous 110-85-0, Piperazine, miscellaneous 110-86-1, Pyridine, miscellaneous 110-87-2 110-89-4, Piperidine, miscellaneous 110-91-8, Morpholine, miscellaneous 110-96-3, Diisobutylamine 111-15-9, Ethylene glycol monoethyl ether acetate 111-34-2, Butylvinyl ether 111-36-4, n-Butyl isocyanate 111-40-0 111-43-3, Dipropyl ether 111-49-9, Hexamethylenimine 111-65-9, Octane, miscellaneous 111-69-3, Adiponitrile 111-71-7, n-Heptaldehyde 111-76-2, Ethylene glycol monobutyl ether 111-92-2, Di-n-butylamine 112-04-9 112-24-3, Triethylenetetramine 112-57-2 115-07-1, Propylene, miscellaneous 115-10-6, Dimethyl ether 115-11-7, Isobutylene, miscellaneous

115-21-9, Ethyltrichlorosilane 115-25-3, Octafluorocyclobutane 116-14-3, Tetrafluoroethylene, miscellaneous 116-15-4, Hexafluoropropylene 116-16-5, Hexachloroacetone 116-54-1, Methyl dichloroacetate 118-74-1, Hexachlorobenzene 118-96-7, Trinitrotoluene 120-92-3, Cyclopentanone 121-43-7, Trimethyl borate 121-44-8, Triethylamine, miscellaneous 121-45-9, Trimethyl phosphite 121-46-0, 2,5-Norbornadiene 121-69-7, N,N-Dimethylaniline, miscellaneous 121-73-3 121-82-4, Cyclotrimethylenetrinitramine 122-51-0, Ethyl orthoformate 122-52-1, Triethyl phosphite 123-00-2, 4-Morpholinepropanamine 123-15-9 123-19-3, Dipropylketone 123-20-6, Vinyl butyrate 123-23-9, Succinic acid peroxide 123-30-8, p-Aminophenol 123-31-9, Hydroquinone, miscellaneous 123-38-6, Propionaldehyde, miscellaneous 123-42-2, Diacetone alcohol 123-54-6, 2,4-Pentanedione, miscellaneous 123-62-6, Propionic anhydride 123-63-7, Paraldehyde 123-72-8, Butyraldehyde 123-75-1, Pyrrolidine, miscellaneous 123-86-4, Butyl acetate 123-91-1, Dioxane, miscellaneous 124-02-7, Diallylamine 124-09-4, Hexamethylenediamine, miscellaneous 124-13-0, Octyl aldehyde 124-18-5, n-Decane 124-38-9, Carbon dioxide, miscellaneous 124-40-3, Dimethylamine, miscellaneous 124-41-4, Sodium methylate 124-43-6 124-65-2, Sodium cacodylate 126-98-7, Methacrylonitrile 126-99-8, Chloroprene 127-18-4, Tetrachloroethylene, miscellaneous 127-85-5, Sodium arsanilate 129-79-3 131-52-2, Sodium pentachlorophenate 131-73-7, Hexanitrodiphenylamine 131-74-8, Ammonium picrate 133-14-2 133-55-1, N,N'-Dinitroso-N,N'-dimethyl terephthalamide 134-32-7, α-Naphthylamine 138-86-3, Dipentene 138-89-6 139-02-6, Sodium phenolate
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(packaging and transport of, stds. for)

IT 140-29-4, Phenylacetonitrile 140-31-8, 1-Piperazineethanamine 140-80-7 140-88-5 141-32-2 141-43-5, Ethanolamine, miscellaneous 141-57-1, Propyltrichlorosilane 141-59-3, tert-Octylmercaptan 141-75-3, Butyryl chloride 141-78-6, Ethyl acetate, miscellaneous 141-79-7, Mesityl oxide 142-04-1, Aniline hydrochloride 142-29-0, Cyclopentene 142-62-1, Hexanoic acid, miscellaneous 142-82-5, Heptane, miscellaneous 142-84-7, Dipropylamine 142-96-1, Dibutyl ether 143-33-9, Sodium cyanide 144-49-0, Fluoroacetic acid 144-62-7D, Ethanedioic acid, salts 146-84-9, Silver picrate 149-74-6, Methylphenyldichlorosilane 151-50-8, Potassium cyanide 151-56-4, Ethylenimine, miscellaneous 156-62-7, Calcium cyanamide 260-94-6, Acridine 283-66-9, Hexamethylene triperoxide diamine 287-23-0, Cyclobutane 287-92-3, Cyclopentane 291-64-5, Cycloheptane 298-00-0, Methyl parathion 298-07-7 302-01-2, Hydrazine, miscellaneous 309-00-2, Aldrin 352-93-2, Diethyl sulfide 353-36-6, Ethyl fluoride 353-42-4, Boron trifluoride dimethyl etherate 353-50-4, Carbonyl fluoride 353-59-3 354-32-5, Trifluoroacetylchloride 357-57-3, Brucine 360-89-4, Octafluorobut-2-ene 428-59-1, Hexafluoropropylene oxide 431-03-8, Butanedione 460-19-5, Cyanogen 462-06-6, Fluorobenzene 462-08-8, m-Aminopyridine 462-95-3, Diethoxymethane 463-04-7, Amyl nitrite 463-49-0, Propadiene 463-58-1, Carbonyl sulfide 463-71-8, Thiophosgene 463-82-1, 2,2-Dimethylpropane 479-45-8 501-53-1, Benzyl chloroformate 502-98-7D, salts 503-74-2, Isopentanoic acid 504-24-5, 4-Pyridinamine 504-29-0, 2-Pyridinamine 506-64-9, Silver cyanide (Ag(CN)) 506-68-3, Cyanogen bromide 506-77-4, Cyanogen chloride 506-85-4, Fulminic acid 506-93-4, Guanidine nitrate 506-96-7, Acetyl bromide 507-02-8, Acetyl iodide 507-09-5, Thioacetic acid, miscellaneous 507-70-0, Borneol 509-14-8, Tetranitromethane 512-85-6, Ascaridole 513-35-9, 2-Methyl-2-butene 513-38-2 513-42-8, Methallyl alcohol 513-48-4, 2-Iodobutane 513-86-0, Acetyl methyl carbinol 517-25-9, Trinitromethane 517-92-0, 1,8-Dihydroxy-2,4,5,7-tetranitroanthraquinone 519-44-8D, 2,4-Dinitroresorcinol, heavy metal salts 532-27-4, Chloracetophenone 533-51-7, Silver oxalate 534-07-6,

1,3-Dichloroacetone 534-15-6, 1,1-Dimethoxyethane 534-22-5, 2-Methylfuran 535-13-7, Ethyl-2-chloropropionate 540-18-1, Amyl butyrate 540-42-1, Isobutyl propionate 540-54-5, Propyl chloride 540-67-0, Ethyl methyl ether 540-73-8 540-82-9, Ethylsulfuric acid 540-84-1, Isooctane 541-41-3, Ethyl chloroformate 542-55-2, Isobutyl formate 542-62-1, Barium cyanide 542-88-1, Dichlorodimethyl ether, symmetrical 543-27-1, Isobutyl chloroformate 543-59-9, Amyl chloride 544-16-1, Butyl nitrite 544-25-2, Cycloheptatriene 544-97-8, Dimethyl zinc 545-55-1, Tris(1-aziridinyl)phosphine oxide 554-12-1, Methyl propionate 554-84-7, m-Nitrophenol 555-54-4, Magnesium diphenyl 556-24-1, Methyl isovalerate 556-56-9, Allyl iodide 556-61-6, Methyl isothiocyanate 556-88-7 556-89-8, Nitrourea 557-17-5, Methyl propyl ether 557-19-7, Nickel cyanide (Ni(CN)2) 557-20-0, Diethylzinc 557-21-1, Zinc cyanide 557-31-3, Allyl ethyl ether 557-40-4, Diallylether 557-98-2, 2-Chloropropene 558-13-4, Carbon tetrabromide 563-45-1, 3-Methyl-1-butene 563-46-2, 2-Methyl-1-butene 563-47-3, Methyl allyl chloride 563-80-4, 3-Methylbutan-2-one 578-54-1, 2-Ethylaniline 578-94-9, Diphenylamine chloroarsine 582-61-6, Benzoyl azide 583-15-3, Mercury benzoate 584-79-2, Allethrin 585-79-5, 1-Bromo-3-nitrobenzene 586-62-9, Terpinolene 587-85-9D, compds. 590-01-2, Butylpropionate 590-36-3, 2-Methylpentan-2-ol 591-27-5, m-Aminophenol 591-87-7, Allyl acetate 591-89-9, Mercuric potassium cyanide 592-01-8, Calcium cyanide 592-05-2, Lead cyanide (Pb(CN)2) 592-34-7, n-Butylchloroformate 592-41-6, 1-Hexene, miscellaneous 592-55-2, 2-Bromoethyl ethyl ether 592-63-2 592-84-7, n-Butylformate 593-53-3, Methyl fluoride 593-60-2, Vinyl bromide 593-89-5, Methyldichloroarsine 594-42-3, Perchloromethylmercaptan 594-72-9, 1,1-Dichloro-1-nitroethane 598-14-1, Ethyldichloroarsine 598-21-0, Bromoacetyl bromide 598-31-2, Bromoacetone 598-57-2, Methyl nitramine 598-57-2D, Methyl nitramine, metal salts 598-58-3, Methyl nitrate 598-73-2, Bromotrifluoroethylene 598-78-7, α-Chloropropionic acid 598-99-2, Methyl trichloroacetate 602-96-0, 1,3,5-Trimethyl-2,4,6-trinitrobenzene 602-99-3, Trinitro-m-cresol 602-99-3D, Methyl picric acid, heavy metal salts 608-50-4, 2,4-Dinitro-1,3,5-trimethylbenzene 610-38-8, 4-Bromo-1,2-dinitrobenzene 616-38-6, Dimethyl carbonate 616-74-0D, 4,6-Dinitroresorcinol, heavy metal salts 617-37-8 617-50-5, Isopropyl isobutyrate 617-89-0, Furfurylamine 619-97-6, Benzene diazonium nitrate 620-05-3, Benzyl iodide 622-44-6, Phenylcarbylamine chloride 622-45-7, Cyclohexyl acetate 623-42-7, Methyl butyrate 623-87-0, Glycerol-1,3-dinitrate 624-61-3, Dibromoacetylene 624-74-8, Diiodoacetylene 624-83-9, Methyl isocyanate 624-91-9, Methyl nitrite 624-92-0, Dimethyl disulfide 625-76-3, Dinitromethane 626-67-5, 1-Methylpiperidine 627-13-4, n-Propyl nitrate 627-30-5 627-63-4, Fumaryl chloride 628-28-4, Butyl methyl ether 628-32-0, Ethyl propyl ether 628-63-7, Amyl acetate 628-81-9, Ethyl butyl ether 628-86-4, Mercury fulminate 628-92-2, Cycloheptene 628-96-6, Ethylene glycol dinitrate 629-13-0, 1,2-Diazidoethane 629-14-1 629-20-9, Cyclooctatetraene 630-08-0, Carbon monoxide, miscellaneous 630-72-8, Trinitroacetonitrile 637-78-5, Isopropyl propionate 638-11-9, Isopropyl butyrate 638-29-9, Valeryl chloride 638-49-3, Amyl formate 641-16-7, 2,3,4,6-Tetranitrophenol 644-31-5, Acetyl benzoyl peroxide 644-97-3, Phenyl phosphorus dichloride 645-55-6, N-Nitroaniline 646-06-0, Dioxolane 674-81-7, Nitrosoguanidine 674-82-8, Diketene 676-83-5, Methyl phosphonous dichloride 676-97-1, Methyl phosphonic dichloride 676-98-2, Methyl phosphonothioic dichloride 677-71-4, Hexafluoroacetone hydrate 681-84-5, Methyl orthosilicate 684-16-2, Hexafluoroacetone 693-21-0, Diethylene glycol dinitrate 694-05-3, 1,2,3,6-Tetrahydropyridine 757-58-4, Hexaethyl tetraphosphate 762-12-9, Decanoyl peroxide 762-13-0, Pelargonyl peroxide 762-16-3 765-34-4, Glycidaldehyde 766-09-6, 1-Ethylpiperidine 771-29-9, Tetralin hydroperoxide 776-74-9, Diphenylmethyl bromide 814-78-8, Methyl isopropenyl ketone 822-06-0 831-52-7, Sodium picramate

883-40-9, Diazodiphenylmethane 918-37-6, Hexanitroethane 918-54-7, Trinitroethanol 926-63-6 926-64-7, 2-Dimethylaminoacetonitrile 928-65-4, Hexyltrichlorosilane 929-06-6, 2-(2-Aminoethoxy)ethanol 993-00-0, Methylchlorosilane 993-12-4 993-43-1, Ethyl phosphonothioic dichloride 1002-16-0, Amyl nitrate 1070-19-5, tert-Butoxycarbonyl azide 1120-21-4, Undecane 1125-27-5
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IT 1126-78-9 1187-93-5, Perfluoromethyl vinyl ether 1299-86-1, Aluminum carbide 1300-64-7, Anisoyl chloride 1300-71-6, Xylenol 1300-73-8D, derivs. 1303-28-2, Arsenic pentoxide 1303-33-9, Arsenic sulfide 1303-33-9D, Arsenic sulfide, mixt. with chlorates 1304-28-5, Barium oxide, miscellaneous 1304-29-6, Barium peroxide 1305-78-8, Calcium oxide, miscellaneous 1305-79-9, Calcium peroxide 1305-99-3, Calcium phosphide 1309-60-0, Lead dioxide 1310-58-3, Potassium hydroxide, miscellaneous 1310-65-2, Lithium hydroxide 1310-73-2, Sodium hydroxide, miscellaneous 1310-82-3, Rubidium hydroxide 1312-73-8, Potassium sulfide 1313-60-6, Sodium peroxide 1313-82-2, Sodium sulfide, miscellaneous 1314-18-7, Strontium peroxide 1314-22-3, Zinc peroxide 1314-24-5, Phosphorus trioxide 1314-34-7, Vanadium trioxide 1314-56-3, Phosphorus pentoxide, miscellaneous 1314-62-1, Vanadium pentoxide, miscellaneous 1314-80-3, Phosphorus sulfide (P2S5) 1314-84-7, Zinc phosphide 1314-85-8, Phosphorus sesquisulfide 1319-77-3, Cresylic acid 1320-37-2, Dichlorotetrafluoroethane 1321-10-4, Chlorocresol 1321-31-9, Phenetidine 1327-53-3, Arsenic trioxide 1330-20-7, Xylene, miscellaneous 1330-45-6, Chlorotrifluoroethane 1330-78-5, Tricresyl phosphate 1331-22-2, Methyl cyclohexanone 1332-12-3, Fulminating gold 1332-37-2, Iron oxide, properties 1333-39-7, Phenolsulfonic acid 1333-41-1, Picoline 1333-74-0, Hydrogen, miscellaneous 1333-82-0, Chromium trioxide 1333-83-1, Sodium hydrogen fluoride 1335-26-8, Magnesium peroxide 1335-31-5, Mercury oxycyanide 1335-85-9, Dinitro-o-cresol 1336-21-6, Ammonium hydroxide 1337-81-1 1338-23-4, Methyl ethyl ketone peroxide 1341-24-8, Chloroacetophenone 1341-49-7, Ammonium hydrogen fluoride 1344-40-7, Lead phosphite, dibasic 1344-67-8, Copper chloride 1498-40-4, Ethyl phosphonous dichloride 1498-51-7, Ethyl phosphorodichloridate 1569-69-3, Cyclohexyl mercaptan 1609-86-5, tert-Butyl isocyanate 1623-15-0 1623-24-1, Isopropyl acid phosphate 1634-04-4, Methyl-tert-butyl ether 1693-71-6, Triallyl borate 1705-60-8, 2,2-Di(4,4-di-tert-butylperoxycyclohexyl)propane 1712-64-7, Isopropyl nitrate 1719-53-5, Diethyldichlorosilane 1737-93-5, 3,5-Dichloro-2,4,6-trifluoropyridine 1789-58-8, Ethyldichlorosilane 1795-48-8, Isopropyl isocyanate 1838-59-1, Allyl formate 1873-29-6, Isobutyl isocyanate 1885-14-9, Phenylchloroformate 1947-27-9, Arsenic trichloride 2050-92-2, Di-n-amylamine 2094-98-6, 1,1'-Azodi(hexahydrobenzonitrile) 2144-45-8, Dibenzyl peroxydicarbonate 2155-71-7 2167-23-9, 2,2-Di(tert-butylperoxy)butane 2217-06-3, Dipicryl sulfide 2243-94-9, 1,3,5-Trinitronaphthalene 2244-21-5, Potassium dichloroisocyanurate 2294-47-5, p-Diazidobenzene 2312-76-7 2338-12-7, 5-Nitrobenzotriazole 2487-90-3, Trimethoxysilane 2508-19-2, Trinitrobenzenesulfonic acid 2524-03-0, Dimethyl chlorothiophosphate 2524-04-1, Diethylthiophosphoryl chloride 2549-51-1, Vinyl chloroacetate 2551-62-4, Sulfur hexafluoride 2567-83-1, Tetraethylammonium perchlorate 2657-00-3, Sodium 2-diazo-1-naphthol-5-sulfonate 2691-41-0, Cyclotetramethylenetetranitramine 2696-92-6, Nitrosyl chloride 2699-79-8, Sulfuryl fluoride 2782-57-2, Dichloroisocyanuric acid 2782-57-2D, Dichloroisocyanuric acid, salts 2820-51-1, Nicotine hydrochloride 2825-15-2 2855-13-2, Isophoronediamine 2867-47-2, Dimethylaminoethyl methacrylate 2893-78-9, Sodium dichloroisocyanurate 2937-50-0, Allyl chloroformate 2941-64-2, Ethyl chlorothioformate 2980-64-5 3025-88-5, 2,5-Dimethyl-2,5-dihydroperoxy hexane 3031-74-1,

Ethyl hydroperoxide 3032-55-1 3054-95-3, 3,3-Diethoxypropene 3087-37-4, Tetrapropylorthotitanate 3129-90-6, Isothiocyanic acid 3129-91-7, Dicyclohexylammonium nitrite 3132-64-7, Epibromohydrin 3165-93-3, 4-Chloro-o-toluidine hydrochloride 3173-53-3, Cyclohexyl isocyanate 3179-56-4, Acetyl cyclohexanesulfonyl peroxide 3188-13-4, Chloromethyl ethyl ether 3248-28-0, Dipropionyl peroxide 3268-49-3 3275-73-8, Nicotine tartrate 3282-30-2, Trimethylacetyl chloride 3497-00-5, Phenyl phosphorus thiodichloride 3689-24-5 3724-65-0, Crotonic acid 3811-04-9, Potassium chlorate 3926-62-3, Sodium chloroacetate 3982-91-0, Thiophosphoryl chloride 4016-11-9, 1,2-Epoxy-3-ethoxypropane 4098-71-9 4109-96-0, Dichlorosilane 4170-30-3, Crotonaldehyde 4300-97-4 4316-42-1, N-n-Butylimidazole 4419-11-8, 2,2'-Azodi(2,4-dimethylvaleronitrile) 4421-50-5 4435-53-4, Butoxyl 4452-58-8, Sodium percarbonate 4472-06-4, Carbonazidodithioic acid 4484-72-4, Dodecyltrichlorosilane 4528-34-1 4547-70-0 4591-46-2 4682-03-5, Diazodinitrophenol 4795-29-3, Tetrahydrofurfurylamine 4904-61-4, 1,5,9-Cyclododecatriene 5283-66-9, Octyltrichlorosilane 5283-67-0, Nonyltrichlorosilane 5329-14-6, Sulfamic acid 5419-55-6, Triisopropyl borate 5610-59-3, Silver fulminate 5637-83-2, Cyanuric triazide 5653-21-4 5894-60-0, Hexadecyltrichlorosilane 5970-32-1, Mercury salicylate 6023-29-6 6275-02-1 6423-43-4 6427-21-0, Methoxymethyl isocyanate 6484-52-2, Nitric acid ammonium salt, properties 6484-52-2D, Ammonium nitrate, mixts. with **fuel** oils 6505-86-8, Nicotine sulfate 6659-60-5, 1,2,4-Butanetriol trinitrate 6842-15-5, Propylene tetramer 7304-92-9 7332-16-3, Inositol hexanitrate 7429-90-5, Aluminum, miscellaneous 7429-90-5D, Aluminum, alkyl derivs. 7439-90-9, Krypton, miscellaneous 7439-92-1D, Lead, compds. 7439-93-2, Lithium, miscellaneous 7439-93-2D, Lithium, alkyl derivs. 7439-95-4, Magnesium, miscellaneous 7439-95-4D, Magnesium, alkyl derivs. 7439-97-6, Mercury, miscellaneous 7439-97-6D, Mercury, compds. 7440-01-9, Neon, miscellaneous 7440-09-7, Potassium, miscellaneous 7440-17-7, Rubidium, miscellaneous 7440-21-3, Silicon, miscellaneous 7440-23-5, Sodium, miscellaneous 7440-28-0D, Thallium, compds. 7440-29-1, Thorium, miscellaneous 7440-31-5D, Tin, org. compds. 7440-32-6, Titanium, properties 7440-36-0, Antimony, miscellaneous 7440-36-0D, Antimony, inorg. and org. compds. 7440-37-1, Argon, miscellaneous 7440-38-2, Arsenic, miscellaneous 7440-39-3, Barium, miscellaneous 7440-39-3D, Barium, alloys 7440-39-3D, Barium, compds. 7440-41-7, Beryllium, miscellaneous 7440-41-7D, Beryllium, compds. 7440-43-9D, Cadmium, compds. 7440-44-0, Carbon, miscellaneous 7440-45-1, **Cerium**, miscellaneous 7440-46-2, Cesium, miscellaneous 7440-55-3, Gallium, miscellaneous 7440-58-6, Hafnium, miscellaneous 7440-59-7, Helium, miscellaneous 7440-61-1, Uranium, miscellaneous 7440-63-3, Xenon, miscellaneous 7440-66-6, Zinc, miscellaneous 7440-67-7, Zirconium, miscellaneous 7440-70-2, Calcium, miscellaneous 7440-70-2D, Calcium, alloys 7446-09-5, Sulfur dioxide, miscellaneous 7446-11-9, Sulfur trioxide, miscellaneous 7446-14-2, Lead sulfate 7446-18-6, Thallium sulfate 7446-70-0, Aluminum chloride (AlCl3), miscellaneous 7487-94-7, Mercuric chloride, miscellaneous 7488-56-4, Selenium disulfide 7521-80-4, Butyltrichlorosilane 7550-45-0, Titanium tetrachloride, miscellaneous 7570-26-5, 1,2-Dinitroethane 7572-29-4, Dichloroacetylene 7578-36-1 7580-67-8, Lithium hydride 7601-89-0, Sodium perchlorate 7601-90-3, Perchloric acid, miscellaneous 7616-94-6, Perchloryl fluoride 7631-89-2, Sodium arsenate 7631-99-4, Sodium nitrate, miscellaneous 7632-00-0, Sodium nitrite 7632-51-1, Vanadium tetrachloride 7637-07-2, Boron trifluoride, miscellaneous 7645-25-2, Lead arsenate 7646-69-7, Sodium hydride 7646-78-8, Stannic chloride, miscellaneous 7646-85-7, Zinc chloride, miscellaneous 7646-93-7, Potassium hydrogen sulfate 7647-01-0, Hydrogen chloride, miscellaneous 7647-18-9, Antimony pentachloride 7647-19-0, Phosphorus pentafluoride
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IT 7664-38-2, Phosphoric acid, miscellaneous 7664-38-2D, Phosphoric acid, esters 7664-39-3, Hydrogen fluoride, miscellaneous 7664-41-7, Ammonia, miscellaneous 7664-93-9, Sulfuric acid, miscellaneous 7681-38-1, Sodium hydrogen sulfate 7681-49-4, Sodium fluoride, miscellaneous 7681-52-9, Sodium hypochlorite 7697-37-2, Nitric acid, miscellaneous 7704-34-9, Sulfur, miscellaneous 7705-07-9D, Titanium trichloride, mixts. 7705-08-0, Ferric chloride, miscellaneous 7718-98-1, Vanadium trichloride 7719-09-7, Thionyl chloride 7719-12-2, Phosphorus trichloride 7722-64-7, Potassium permanganate 7722-84-1, Hydrogen peroxide (H2O2), miscellaneous 7723-14-0, Phosphorus, miscellaneous 7726-95-6, Bromine, miscellaneous 7727-15-3, Aluminum bromide 7727-18-6, Vanadium oxytrichloride 7727-21-1, Potassium persulfate 7727-37-9, Nitrogen, miscellaneous 7727-37-9D, Nitrogen, mixts. with rare gases 7727-54-0, Ammonium persulfate 7738-94-5, Chromic acid (H2CrO4) 7756-94-7, Triisobutylene 7757-79-1, Potassium nitrate, miscellaneous 7758-01-2, Potassium bromate 7758-09-0, Potassium nitrite 7758-19-2, Sodium chlorite 7758-94-3, Ferrous chloride 7761-88-8, Silver nitrate, miscellaneous 7773-03-7, Potassium bisulfite 7775-09-9, Sodium chlorate 7775-14-6, Sodium dithionite 7778-39-4, Arsenic acid 7778-44-1, Calcium arsenate 7778-54-3, Calcium hypochlorite 7778-66-7 7778-74-7, Potassium perchlorate 7779-86-4, Zinc dithionite 7779-88-6, Zinc nitrate 7782-39-0, Deuterium, miscellaneous 7782-41-4, Fluorine, miscellaneous 7782-44-7, Oxygen, miscellaneous 7782-44-7D, Oxygen, mixts. with rare gases 7782-49-2, Selenium, miscellaneous 7782-50-5, Chlorine, miscellaneous 7782-65-2, Germane 7782-78-7, Nitrosylsulfuric acid 7782-79-8D, Hydrazoic acid, copper complexes 7782-99-2, Sulfurous acid, miscellaneous 7783-06-4, Hydrogen sulfide, miscellaneous 7783-07-5, Hydrogen selenide (H2Se) 7783-08-6, Selenic acid 7783-33-7 7783-41-7, Oxygen difluoride 7783-54-2, Nitrogen trifluoride 7783-56-4, Antimony trifluoride 7783-60-0, Sulfur tetrafluoride 7783-61-1, Silicon tetrafluoride 7783-66-6, Iodine pentafluoride 7783-70-2, Antimony pentafluoride 7783-79-1, Selenium hexafluoride 7783-80-4, Tellurium hexafluoride 7783-81-5, Uranium hexafluoride 7783-82-6, Tungsten hexafluoride 7783-91-7, Silver chlorite 7784-08-9 7784-21-6, Aluminum hydride 7784-30-7, Aluminum phosphate 7784-42-1, Arsine 7784-46-5, Sodium arsenite 7786-30-3D, Magnesium chloride (MgCl2), mixt. with chlorates 7787-36-2, Barium permanganate 7787-41-9, Barium selenate 7787-71-5, Bromine trifluoride 7788-97-8, Chromic fluoride 7789-09-5, Ammonium dichromate 7789-18-6, Cesium nitrate 7789-21-1, Fluorosulfonic acid 7789-23-3, Potassium fluoride 7789-29-9, Potassium bifluoride 7789-30-2, Bromine pentafluoride 7789-38-0, Sodium bromate 7789-59-5, Phosphorus oxybromide 7789-60-8, Phosphorus tribromide 7789-61-9, Antimony tribromide 7789-69-7, Phosphorus pentabromide 7789-78-8, Calcium hydride 7790-59-2 7790-69-4, Lithium nitrate 7790-91-2, Chlorine trifluoride 7790-93-4, Chloric acid 7790-94-5, Chlorosulfonic acid 7790-98-9, Ammonium perchlorate 7790-99-0, Iodine monochloride 7791-10-8, Strontium chlorate 7791-23-3, Selenium oxychloride 7791-25-5, Sulfuryl chloride 7791-27-7, Disulfuryl chloride 7803-51-2, Phosphine 7803-52-3, Stibine 7803-54-5, Magnesium diamide 7803-55-6, Ammonium metavanadate 7803-57-8, Hydrazine hydrate 7803-62-5, Silane, miscellaneous 7803-63-6, Ammonium hydrogen sulfate 8004-09-9 8006-19-7, Amatol 8006-28-8, Soda lime 8007-56-5, Nitrohydrochloric acid 8007-58-7 8012-74-6, London Purple 8014-95-7, Fuming sulfuric acid 8049-17-0, Ferrosilicon 8050-88-2, Celluloid 8063-77-2 8065-53-0, Hexolite 8066-33-9, Pentolite 8070-50-6 9003-53-6, Polystyrene 9004-70-0, Collodion 9056-38-6, Nitrostarch 9080-17-5, Ammonium polysulfide 10022-31-8, Barium nitrate 10024-97-2, Nitrogen oxide (N2O), properties 10025-78-2, Trichlorosilane 10025-85-1, Nitrogen trichloride 10025-87-3, Phosphorus oxychloride 10025-91-9,

Antimony trichloride 10026-04-7, Silicon tetrachloride 10026-11-6, Zirconium tetrachloride 10026-13-8, Phosphorus pentachloride 10031-13-7 10031-87-5, 2-Ethylbutyl acetate 10034-81-8, Magnesium perchlorate 10034-85-2, Hydrogen iodide 10035-10-6, Hydrogen bromide, miscellaneous 10039-54-0, Hydroxylamine sulfate 10042-76-9, Strontium nitrate 10045-94-0, Mercuric nitrate 10049-04-4, Chlorine dioxide 10099-74-8, Lead nitrate 10101-50-5 10102-06-4, Uranyl nitrate 10102-12-2, Selenium nitride 10102-18-8, Sodium selenite 10102-43-9, Nitric oxide, miscellaneous 10102-44-0, Nitrogen dioxide, miscellaneous 10102-49-5, Ferric arsenate 10102-50-8, Ferrous arsenate 10103-50-1, Magnesium arsenate 10118-76-0 10124-37-5, Calcium nitrate 10124-48-8, Mercury ammonium chloride 10124-50-2, Potassium arsenite 10137-74-3, Calcium chlorate 10192-29-7, Ammonium chlorate 10241-05-1, Molybdenum pentachloride 10256-53-8, Methanamine, compd. with trinitromethane, miscellaneous 10294-33-4, Boron tribromide 10294-34-5, Boron trichloride 10306-83-9 10326-21-3, Magnesium chlorate 10326-24-6 10361-95-2, Zinc chlorate 10377-60-3, Magnesium nitrate 10377-66-9, **Manganese** nitrate 10415-75-5, Mercurous nitrate 10421-48-4, Ferric nitrate 10431-47-7 10544-63-5, Ethyl crotonate 11069-19-5, Dichlorobutene 11071-47-9, Isooctene 11099-22-2 11105-16-1, Zirconium hydride 11122-26-2 11135-81-2 11138-49-1, Sodium aluminate 11140-68-4, Titanium hydride 12001-29-5, Chrysotile 12002-19-6, Mercury nucleate 12002-48-1, Trichlorobenzene 12030-88-5, Potassium superoxide 12031-80-0, Lithium peroxide 12033-49-7, Nitrogen trioxide 12034-12-7, Sodium superoxide 12057-74-8, Magnesium phosphide (Mg3P2) 12125-01-8, Ammonium fluoride 12135-76-1, Ammonium sulfide 12136-15-1, Mercury nitride 12164-94-2, Ammonium azide 12167-20-3, Nitrocresol 12172-67-7, Actinolite 12401-70-6, Potassium monoxide 12401-86-4, Sodium monoxide 12427-38-2, Maneb 12440-42-5, Tin phosphide (Sn3P4) 12504-16-4, Strontium phosphide (Sr3P2) 12627-52-0, Antimony sulfide 12627-52-0D, Antimony sulfide, mixt. with chlorates 12640-89-0, Selenium oxide 12653-71-3, Mercury oxide 12737-18-7, Calcium silicide 12751-03-0, Cordite 12771-08-3, Sulfur chloride 12789-46-7, Amyl acid phosphate 13092-75-6, Silver acetylide 13138-45-9 13225-10-0, α-Methylglucoside tetranitrate 13319-75-0, Boron trifluoride dihydrate 13410-01-0, Sodium selenate 13424-46-9, Lead azide 13426-91-0, Cupriethylenediamine 13437-80-4, Mercuric arsenate 13444-85-4, Nitrogen triiodide 13446-10-1, Ammonium permanganate 13446-48-5, Ammonium nitrite 13450-97-0, Strontium perchlorate 13453-30-0, Thallium chlorate 13463-39-3, Nickel carbonyl 13463-40-6, Iron pentacarbonyl 13464-33-0, Zinc arsenate 13464-58-9D, Arsenous acid, copper complexes 13465-73-1, Bromosilane 13465-95-7, Barium perchlorate 13472-08-7 13473-90-0, Aluminum nitrate 13477-00-4, Barium chlorate 13477-10-6, Barium hypochlorite 13477-36-6, Calcium perchlorate 13520-83-7, Uranyl nitrate hexahydrate 13537-32-1, Fluorophosphoric acid 13548-38-4, Chromium nitrate 13597-54-1, Zinc selenate
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering or chemical process); BIOL (Biological study); PROC (Process)
(packaging and transport of, stds. for)

IT 13597-99-4, Beryllium nitrate 13598-36-2, Phosphonic acid 13637-63-3, Chlorine pentafluoride 13637-76-8, Lead perchlorate 13718-59-7 13746-89-9, Zirconium nitrate 13762-51-1, Potassium borohydride 13766-44-4, Mercury sulfate 13769-43-2, Potassium metavanadate 13770-96-2, Sodium aluminum hydride 13774-25-9 13779-41-4, Difluorophosphoric acid 13780-03-5, Calcium bisulfite 13823-29-5, Thorium nitrate 13840-33-0, Lithium hypochlorite 13840-33-0D, Lithium hypochlorite, mixts. 13843-59-9, Ammonium bromate 13863-88-2, Silver azide 13967-90-3, Barium bromate 13973-87-0, Bromine azide 13973-88-1, Chlorine azide 13987-01-4, Tripropylene 14014-86-9 14019-91-1, Calcium selenate 14293-73-3 14448-38-5, Hyponitrous acid

14519-07-4, Zinc bromate 14519-17-6, Magnesium bromate 14546-44-2, Hydrazine azide 14567-73-8, Tremolite 14644-61-2, Zirconium sulfate 14666-78-5, Diethylperoxydicarbonate 14674-72-7, Calcium chlorite 14696-82-3, Iodine azide (I(N3)) 14977-61-8 15195-06-9 15245-44-0, Lead trinitroresorcinate 15347-57-6, Lead acetate 15457-98-4 15512-36-4, Calcium dithionite 15545-97-8, 2,2'-Azodi(2,4-dimethyl-4-methoxyvaleronitile) 15598-34-2, Pyridine perchlorate 15718-71-5, Ethylenediamine diperchlorate 15825-70-4, Mannitol hexanitrate 15875-44-2, Methylamine perchlorate 16215-49-9, Di-n-butyl peroxydicarbonate 16229-43-9, Vanadyl sulfate 16339-86-9 16646-35-8 16721-80-5, Sodium hydrosulfide 16753-36-9, Copper acetylide 16853-85-3, Lithium aluminum hydride 16871-71-9, Zinc fluorosilicate 16871-90-2, Potassium fluorosilicate 16872-11-0 16893-85-9, Sodium fluorosilicate 16901-76-1, Thallium nitrate 16919-19-0, Ammonium fluorosilicate 16940-66-2, Sodium borohydride 16940-81-1, Hexafluorophosphoric acid 16941-12-1, Chloroplatinic acid 16949-15-8, Lithium borohydride 16949-65-8, Magnesium fluorosilicate 16961-83-4, Fluorosilicic acid 16962-07-5, Aluminum borohydride 17014-71-0, Potassium peroxide 17068-78-9, Anthophyllite 17462-58-7, sec-Butyl chloroformate 17639-93-9, Methyl-2-chloropropionate 17687-37-5, Urea nitrate 17702-41-9, Decaborane 17861-62-0 18130-44-4, Titanium sulfate 18414-36-3 18810-58-7, Barium azide 19159-68-3 19287-45-7, Diborane 19287-45-7D, Diborane, mixts. 19624-22-7, Pentaborane 20062-22-0 20236-55-9, Barium styphnate 20600-96-8 20816-12-0, Osmium tetroxide 20820-44-4 20859-73-8, Aluminum phosphide 21351-79-1, Cesium hydroxide (Cs(OH)) 21569-01-7 21723-86-4 21985-87-5, Pentanitroaniline 22128-62-7, Chloromethylchloroformate 22750-93-2, Ethyl perchlorate 22751-24-2 22826-61-5 23414-72-4, Zinc permanganate 23745-86-0, Potassium fluoroacetate 24167-76-8, Sodium phosphide 24468-13-1, 2-Ethylhexylchloroformate 24884-69-3 25013-15-4, Vinyl toluene 25109-57-3 25134-21-8 25136-55-4, Dimethyldioxane 25154-42-1, Chlorobutane 25154-54-5, Dinitrobenzene 25155-15-1, Cymene 25167-20-8, Tetrabromoethane 25167-67-3, Butylene 25167-70-8, Diisobutylene 25167-80-0, Chlorophenol 25168-05-2, Chlorotoluene 25265-68-3, Methyltetrahydrofuran 25321-14-6, Dinitrotoluene 25322-01-4, Nitropropane 25322-20-7, Tetrachloroethane 25323-30-2, Dichloroethylene 25339-56-4, Heptene 25340-17-4, Diethylbenzene 25377-72-4, n-Amylene 25496-08-6, Fluorotoluene 25497-28-3, Difluoroethane 25497-29-4, Chlorodifluoroethane 25513-64-8 25550-53-2 25550-55-4, Dinitrosobenzene 25550-58-7, Dinitrophenol 25550-58-7D, Dinitrophenol, salts 25567-67-3, Chlorodinitrobenzene 25567-68-4, Chloronitrotoluene 25639-42-3, Methylcyclohexanol 25721-38-4, Lead picrate 25917-35-5, Hexanol 26134-62-3, Lithium nitride 26140-60-3D, Terphenyl, halo derivs. 26249-12-7, Dibromobenzene 26471-56-7, Dinitroaniline 26471-62-5, Toluene diisocyanate 26506-47-8, Copper chlorate 26571-79-9 26618-70-2 26628-22-8, Sodium azide 26638-19-7, Dichloropropane 26645-10-3 26760-64-5, Isopentene 26762-93-6 26914-02-3, Iodopropane 26915-12-8, Toluidine 26952-23-8, Dichloropropene 26952-42-1, Trinitroaniline 27134-26-5, Chloroaniline 27134-27-6, Dichloroaniline 27137-85-5, Dichlorophenyltrichlorosilane 27152-57-4 27176-87-0, Dodecylbenzenesulfonic acid 27195-67-1, Dimethylcyclohexane 27215-10-7 27236-46-0, Isohexene 27254-36-0, Nitronaphthalene 27458-20-4, Butyltoluene 27978-54-7, Hydrazine perchlorate 27986-95-4 27987-06-0, Trifluoroethane 28260-61-9, Trinitrochlorobenzene 28300-74-5, Antimony potassium tartrate 28324-52-9, Pinane hydroperoxide 28479-22-3 28653-16-9 28679-16-5, Trimethylhexamethylenediisocyanate 28805-86-9, Butylphenol 29191-52-4, Anisidine 29306-57-8 29790-52-1, Nicotine salicylate 29903-04-6 29965-97-7, Cyclooctadiene 30236-29-4, Sucrose octanitrate 30525-89-4, Paraformaldehyde 30553-04-9, Naphthylthiourea 30586-10-8, Dichloropentane 30586-18-6, Pentamethylheptane 31058-64-7 31212-28-9, Nitrobenzenesulfonic acid

33453-96-2 33864-17-4 34216-34-7, Trimethylcyclohexylamine
35296-72-1, Butanol 35860-50-5, Trinitrobenzoic acid 35860-51-6,
Dinitroresorcinol 35884-77-6, Xylyl bromide 36472-34-1, Chloropropene
37020-93-2, Mercury cyanide (Hg(CN)) 37187-22-7, Acetyl acetone peroxide
37206-20-5, Methyl isobutyl ketone peroxide 37273-91-9, Metaldehyde
37320-91-5, Mercury iodide 37368-10-8, Aluminum vanadium oxide
38139-71-8, Bromide chloride 38232-63-2, Mercurous azide 38483-28-2,
Methylene glycol dinitrate 39377-49-6, Copper cyanide 39377-56-5, Lead
sulfide 39404-03-0, Magnesium silicide 39409-64-8, TVOPA 39432-81-0
39455-80-6, Ammonium sodium vanadium oxide 39990-99-3, Lithium acetylide
ethylenediamine complex 40058-87-5, Isopropyl-2-chloropropionate
41195-19-1 41587-36-4, Chloronitroaniline 42296-74-2, Hexadiene
43133-95-5, Methylpentane 50815-73-1 50874-93-6 51006-59-8
51023-22-4, Trichlorobutene 51064-12-1 51312-23-3, Mercury bromide
51317-24-9, Lead nitroresorcinate 51325-42-9, Copper selenite
51845-86-4, Ethyl borate 52181-51-8 53014-37-2, Tetranitroaniline
53408-91-6, Mercury thiocyanate 53422-49-4 53569-62-3 53839-08-0
53906-68-6 54141-09-2, 1,4,-Butynediol 54413-15-9, Tritonal
54727-89-8 54958-71-3 55510-04-8, Dinitroglycoluril 55810-17-8
56929-36-3 56960-91-9 57607-37-1, Octolite 58164-88-8, Antimony
lactate 58499-37-9 58933-55-4
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering
or chemical process); BIOL (Biological study); PROC (Process)
(packaging and transport of, stds. for)

IT 59753-21-8 59917-23-6 60168-33-4 60616-74-2, Magnesium hydride
60869-68-3 60999-18-0 61061-91-4 61878-56-6 63085-06-3
63283-80-7, Dichloroisopropyl ether 63597-41-1, Octadiene 63885-01-8
63907-41-5 63937-14-4 63938-10-3, Chlorotetrafluoroethane 63988-31-8
64173-96-2 64973-06-4, Arsenic bromide 66634-68-2 67632-66-0
68833-55-6, Mercury acetylide (Hg(C2H)) 68848-64-6 68975-47-3,
Isoheptene 69523-06-4, Ferrocerium 69782-73-6 70027-50-8, Copper
selenate 70042-58-9, tert-Butylcyclohexylchloroformate 70268-38-1
70268-40-5 70281-33-3 70288-87-8 70288-89-0 70399-13-2, Lithium
ferrosilicon 72672-48-1 73506-32-8, Hydrazine selenate 76080-77-8
77851-23-1 78369-83-2 79869-58-2, Propanethiol 81228-87-7,
Cyclobutylchloroformate 82280-63-5 83267-52-1 84002-64-2
87686-42-8 90920-71-1 95332-73-3 98130-51-9 98205-29-9
100920-70-5 102437-81-0 105185-95-3 105554-30-1 109259-85-0
118833-38-8 125227-17-0 127795-79-3, Ammonium arsenate 131566-30-8,
Potassium phosphide 132052-03-0, Pesticide S 134009-81-7, Fulminating
platinum 134010-02-9, Fulminating silver 134115-62-1
134115-63-2, Piperazinedipropanamine 134115-64-3 134115-65-4
134115-66-5 134115-68-7 134115-69-8 134115-70-1 134115-70-1D,
salts 134115-71-2 134115-72-3 134115-73-4 134115-74-5
134115-75-6 134115-76-7 134140-03-7 134140-11-7 134170-48-2
134191-17-6, Azaurolic acid 134191-62-1 134206-87-4 134206-88-5,
Sodium chlorate-dinitrotoluene mixture 134206-89-6 134207-07-1
134226-92-9 134265-01-3 134282-14-7, Ammonium fulminate 134282-15-8
134282-16-9, 5-Azido-1-hydroxytetrazole 134282-17-0 134282-18-1
134282-19-2 134282-20-5 134282-21-6 134282-23-8,
1,9-Dinitroxypentamethylene-2,4,6,8-tetramine 134282-24-9 134282-25-0
134282-26-1 134282-27-2 134282-28-3 134282-30-7 134282-30-7D,
salts 134282-31-8 134282-34-1 134282-35-2 134282-37-4
134282-38-5 134282-39-6 134282-40-9 134282-41-0 134282-42-1,
2,4,6-Trinitrophenyl guanidine 134282-43-2 134293-21-3 134293-22-4
134293-23-5 134293-24-6, 2,3,5,6-Tetranitroso-1,4-dinitrobenzene
134309-18-5 134318-55-1 134318-56-2 134356-41-5 134884-20-1,
Aluminum magnesium phosphide 135072-82-1 135099-37-5 135991-25-2,
Galactan trinitrate 135991-28-5 135991-41-2 135991-57-0
RL: ADV (Adverse effect, including toxicity); PEP (Physical, engineering
or chemical process); BIOL (Biological study); PROC (Process)
(packaging and transport of, stds. for)

IT 78-11-5P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

L6 ANSWER 26 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1992:24513 CAPLUS
DN 116:24513
ED Entered STN: 24 Jan 1992
TI Method for reducing emissions from or increasing the utilizable energy of **fuel** for powering internal combustion engines
IN Epperly, William Robert; Sprague, Barry Normand; Kelso, Danny T.; Bowers, Wayne E.
PA Fuel Tech, Inc., USA
SO PCT Int. Appl., 46 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C10L001-18
ICS C10L001-22; C07F015-00
CC 51-7 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 59
FAN.CNT 15

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9007561	A1	19900712	WO 1989-US5834	19891220
	W: DK, JP, NO				
	RW: AT, BE, CH, DE, ES, FR, GB, IT, LU, NL, SE				
	EP 451207	A1	19911016	EP 1990-901945	19891220
	EP 451207	B1	19950426		
	R: AT, BE, CH, DE, ES, FR, GB, IT, LI, LU, NL, SE				
	JP 04504133	T2	19920723	JP 1990-502428	19891220
	AT 121764	E	19950515	AT 1990-901945	19891220
	ES 2074156	T3	19950901	ES 1990-901945	19891220
	DK 9101125	A	19910612	DK 1991-1125	19910612
	NO 9102536	A	19910627	NO 1991-2536	19910627
	CN 1179174	A	19980415	CN 1996-192513	19960314
	CN 1087768	B	20020717		
	US 6051040	A	20000418	US 1997-978687	19971126
PRAI	US 1988-291245	A	19881228		
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	US 1991-808435	B2	19911216		
	US 1993-3245	B2	19930111		
	US 1993-89838	B1	19930712		
	US 1995-518251	B1	19950823		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 9007561	ICM	C10L001-18
	ICS	C10L001-22; C07F015-00
US 6051040	ECLA	B01D053/94K4; F01N003/023; F01N003/035; F01N003/037; F02B051/02; F02D019/12; F02D035/00D6; C10L001/10; C10L010/06

OS MARPAT 116:24513
AB A method for reducing emissions from or increasing the utilizable energy of **fuel** for powering **diesel**, **gasoline**, or gasohol internal-combustion engines comprises mixing with the **fuel** an additive comprising a **fuel**-sol., nonionic, **organometallic** Pt-group metal coordination compn. which is (a) resistant to breakdown under ambient temps., (b) does not contain a disadvantageous amt. of P, As, Sb, or halides, and (c) has a partition ratio sufficient to maintain preferential

soly. in the **fuel**. A such coordination compn. is cyclooctadiene Pt di-Ph.

ST **fuel** internal combustion engine additive; emission redn engine **fuel** additive; **platinum** group metal coordination **fuel**; cyclooctadine **platinum** diphenyl **fuel** additive; **gasoline** additive **platinum** diphenyl **fuel** additive; **diesel** additive **platinum** metal complex; gasohol additive **platinum** metal complex

IT **Fuels**, **diesel**
(additives for, nonionic **organometallic platinum**-group metal coordination compds. as, for emission redn. and energy saving)

IT **Gasoline** additives
(nonionic **organometallic platinum**-group metal coordination compds. as, for emission redn. and energy saving)

IT **Platinum**-group metal compounds
RL: USES (Uses)
(**organometallic** compds., nonionic **fuel** additives, for internal-combustion engines, for emission redn. and energy saving)

IT 532-31-0, Silver benzoate 7761-88-8, Silver nitrate, uses
RL: USES (Uses)
(for purifn. of **platinum**-group metal coordination compds., as **fuels** additives, for internal-combustion engines)

IT 12266-92-1 51177-66-3
RL: USES (Uses)
(**fuel** additive, for emission redn. and energy saving, from powering internal-combustion engines)

IT 14697-64-4 15170-57-7
RL: USES (Uses)
(**fuel** additive, for emission redn. from powering internal-combustion engines)

IT 12277-88-2P 131282-62-7P
RL: PREP (Preparation)
(prepn. of, **fuel** additive, for emission redn. from powering internal-combustion engines)

IT 56819-03-5P
RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(reaction of, with Grignard reagent, for **fuel** additive prepn., for emission redn. from powering internal-combustion engines)

IT 629-39-0, Octyl nitrate
RL: USES (Uses)
(solvent, for **diesel** additives for nonionic **organometallic platinum**-group metal coordination compds., for emission redn. and energy saving)

IT 64-17-5, Ethanol, uses 67-64-1, Acetone, uses 109-99-9, Tetrahydrofuran, uses 1634-04-4, Methyl tert-butyl ether
RL: USES (Uses)
(solvent, for **gasoline** additives of nonionic **organometallic platinum**-group metal coordination compds., for emission redn. and energy saving)

L6 ANSWER 27 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1990:518261 CAPLUS
DN 113:118261
ED Entered STN: 29 Sep 1990
TI **Diesel** fuel additives and **diesel** fuels containing soluble **platinum** group metal compounds and use in **diesel** engines
IN Bowers, Wayne E.; Sprague, Barry N.
PA Fuel Tech, Inc., USA
SO U.S., 9 pp. Cont.-in-part of U.S. Ser. No. 796,428, abandoned.
CODEN: USXXAM
DT Patent
LA English

IC ICM C10L001-30
NCL 044067000
CC 51-9 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 29, 59
FAN.CNT 15

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4892562	A	19900109	US 1986-897864	19860819
	EP 189642	A1	19860806	EP 1985-307965	19851101
	EP 189642	B1	19910306		
	R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
	AT 61389	E	19910315	AT 1985-307965	19851101
	DK 8505274	A	19860605	DK 1985-5274	19851114
	FI 8504486	A	19860605	FI 1985-4486	19851114
	NO 8504544	A	19860605	NO 1985-4544	19851114
	ES 548951	A1	19890101	ES 1985-548951	19851115
	ES 548951	A5	19890130		
	ZA 8509265	A	19860827	ZA 1985-9265	19851203
	CN 85109511	A	19870513	CN 1985-109511	19851204
	US 5215652	A	19930601	US 1989-303164	19890127
	US 5034020	A	19910723	US 1989-380891	19890717
	US 5749928	A	19980512	US 1996-601530	19960214
PRAI	US 1984-677954	B2	19841204		
	US 1985-790738	B2	19851024		
	US 1985-796428	B2	19851108		
	EP 1985-307965	A	19851101		
	US 1986-897864	A2	19860819		
	US 1986-897869	A2	19860819		
	US 1988-291245	B2	19881228		
	US 1991-794329	B1	19911112		
	US 1992-896896	B1	19920610		
	US 1993-120651	B1	19930913		
	US 1995-439697	B1	19950512		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 4892562	ICM	C10L001-30
	NCL	044067000
US 5749928	ECLA	B01D053/94K4; C10L001/14; C10L001/18T; C10L001/30A; C10L001/30B; C10L003/00B; C10L001/10; C10L010/02; C10L010/06; F01N003/023; F01N003/035; F01N003/037; F02B051/02; F02D035/00D6

OS MARPAT 113:118261
AB A method of reducing emissions from or improving fuel economy of **diesel** fuels comprises mixing with **diesel** fuel a fuel-sol. **organometallic** additive having the general formula XPtR1R2, where X is a ligand contg. ≥1 unsatd. C-to-C bonds with an olefinic, acetylenic or arom. π bond configuration, and R1 and R2 are, independently, benzyl, Ph, nitrobenzyl, or C1-10 alkyl, in an atm. to supply 0.01-1.0 ppm of Pt/part of fuel. An example of the additive is dibenzyl cyclooctadiene Pt (II).
ST **diesel** fuel additive **platinum organometallic**; cyclootadiene **platinum** complex **diesel** additive; emission redn **diesel** fuel additive
IT Fuels, **diesel**
(additives for, **platinum**-group metal complexes as)
IT 39459-32-0 51177-66-3 129241-56-1 129320-93-0
RL: USES (Uses)
(**diesel** fuel additive)
IT 64-17-5, Ethanol, uses and miscellaneous 109-99-9, Tetrahydrofuran, uses and miscellaneous 629-39-0, Octyl nitrate 1634-04-4, Methyl tertiary butyl ether
RL: USES (Uses)
(solvent, for organo-**platinum** group metal complexes, for

diesel fuels)

L6 ANSWER 28 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1990:518211 CAPLUS
DN 113:118211
ED Entered STN: 29 Sep 1990
TI **Gasoline** additives and **gasoline** containing soluble **platinum** group metal compounds and use in internal combustion engines
IN Bowers, Wayne E.; Sprague, Barry N.
PA Fuel Tech, Inc., USA
SO U.S., 8 pp. Cont.-in-part of U.S. Ser. No. 796,428, abandoned.
CODEN: USXXAM
DT Patent
LA English
IC ICM C10L001-30
NCL 044067000
CC 51-7 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 29, 59
FAN.CNT 15

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4891050	A	19900102	US 1986-897869	19860819
	EP 189642	A1	19860806	EP 1985-307965	19851101
	EP 189642	B1	19910306		
	R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
	AT 61389	E	19910315	AT 1985-307965	19851101
	DK 8505274	A	19860605	DK 1985-5274	19851114
	FI 8504486	A	19860605	FI 1985-4486	19851114
	NO 8504544	A	19860605	NO 1985-4544	19851114
	ES 548951	A1	19890101	ES 1985-548951	19851115
	ES 548951	A5	19890130		
	ZA 8509265	A	19860827	ZA 1985-9265	19851203
	CN 85109511	A	19870513	CN 1985-109511	19851204
	US 5215652	A	19930601	US 1989-303164	19890127
	US 5034020	A	19910723	US 1989-380891	19890717
	US 5749928	A	19980512	US 1996-601530	19960214
PRAI	US 1984-677954	B2	19841204		
	US 1985-790738	B2	19851024		
	US 1985-796428	B2	19851108		
	EP 1985-307965	A	19851101		
	US 1986-897864	A2	19860819		
	US 1986-897869	A2	19860819		
	US 1988-291245	B2	19881228		
	US 1991-794329	B1	19911112		
	US 1992-896896	B1	19920610		
	US 1993-120651	B1	19930913		
	US 1995-439697	B1	19950512		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 4891050	ICM	C10L001-30
	NCL	044067000
US 5749928	ECLA	B01D053/94K4; C10L001/14; C10L001/18T; C10L001/30A; C10L001/30B; C10L003/00B; C10L001/10; C10L010/02; C10L010/06; F01N003/023; F01N003/035; F01N003/037; F02B051/02; F02D035/00D6

OS MARPAT 113:118211
AB A method of reducing emissions from or improving the performance of internal-combustion **gasoline** engines comprises mixing **gasoline** with a Pt group metal compd. to supply 0.01-1.0 ppm Pt group metal/part of **fuel**. Preferred compds. are those of the formula XMR2, where X is a

cyclooctadienyl ligand, M is a Pt group metal, and R is benzyl, Ph or nitrobenzyl.

ST **gasoline** additive **platinum organometallic** compd; cyclooctadienyl **platinum** complex **gasoline** additive; emission control **gasoline** **platinum** complex

IT **Gasoline** additives
(combustion improvers-emission reducers, **platinum**-group metal cyclooctadiene complexes)

IT Hydrocarbons, uses and miscellaneous
RL: USES (Uses)
(emissions, from **gasoline** combustion, **platinum** -group metal complexes for redn. of)

IT **Platinum**-group metal compounds
RL: USES (Uses)
(complexes, combustion improvers-emission reducers, for **gasoline**)

IT 630-08-0P, Carbon monoxide, preparation
RL: PREP (Preparation)
(emissions, from **gasoline** combustion, **platinum** -group metal complexes for redn. of)

IT 1273-81-0, Osmocene 15635-86-6 39459-32-0 43222-94-2 51177-66-3 104469-81-0 129241-56-1 129241-70-9 129267-38-5
RL: USES (Uses)
(**gasoline** additive, for emission redn. and combustion improvement)

IT 64-17-5, Ethanol, uses and miscellaneous 109-99-9, Tetrahydrofuran, uses and miscellaneous 1634-04-4, Methyl tert-butyl ether
RL: USES (Uses)
(solvent, **platinum** group complexes in, **gasoline** additives contg., for emission redn. and combustion improvement)

L6 ANSWER 29 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1988:593417 CAPLUS
DN 109:193417
ED Entered STN: 25 Nov 1988
TI Characterization of metal-soot systems by transmission electron microscopy
AU Wong, Chor
CS Phys. Chem. Dep., Gen. Mot. Res. Lab., Warren, MI, 48090-9055, USA
SO Carbon (1988), 26(5), 723-34
CODEN: CRBNAH; ISSN: 0008-6223
DT Journal
LA English
CC 51-12 (Fossil Fuels, Derivatives, and Related Products)
AB TEM was employed to characterize soot obtained in the combustion of mixts. of PhMe and **organometallic** additives. Utilizing Me3PtI as a model compd., it is shown that low additive concns. (1 × 10-3 M Pt) result in the formation of metal particles <3.0 nm in diam. Higher additive concns. (1 × 10-3 M Pt) produced larger metal particles 5.0-6.0 nm in diam. Large metal particles are less active than small metal particles for promoting C oxidn. and suggest there may be advantages in utilizing low additive concns. Two alk. earth metal additives, Ba and Ca naphthenate, resulted in little soot prodn., and no metal was detected in the product soot. The effectiveness of the alk. earth metals in reducing soot emissions in the flame suggest that they may be good candidates for controlling particulate emissions. However, the poor contact between the metal and the resulting soot indicates that Ba and Ca naphthenates may be poor additives for use in conjunction with aftertreatment devices in **diesel** vehicles. Ferrocene (I) and ferric acetylacetonate (II), when introduced with the same Fe concn., differed significantly in their prodn. of Fe particles; no particles were obsd. with I, and very small Fe particles were obsd. with II. The difference between the 2 additives is

attributed to differences in their volatility and thermal stability. The different extents of metal incorporation obtained with I and II show the significance of the org. portion of the additive in detg. the metal-C contact and ultimately the effectiveness of an additive.

ST metal additive soot fuel combustion

IT Soot
(characterization of systems contg. metals and, by TEM, combustion of **diesel** fuels contg. **organometallic** additives in relation to)

IT Combustion
(of toluene, as **diesel** fuel model, contg. **organometallic** additives, characterization of metal-soot systems in relation to)

IT Metals, analysis
RL: ANST (Analytical study)
(transmission electron microscopy of systems contg. soot and, combustion of motor fuel contg. **organometallic** additives in relation to)

IT Naphthenic acids, compounds
RL: USES (Uses)
(barium salts, combustion of toluene model fuel contg., TEM of metal-soot systems in relation to)

IT Naphthenic acids, compounds
RL: USES (Uses)
(calcium salts, combustion of toluene model fuel contg., TEM of metal-soot systems in relation to)

IT 108-88-3, Toluene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(combustion of, as model **diesel** fuel , with **organometallic** additives, soot suppression in)

IT 7782-44-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(combustion, of toluene, as **diesel** fuel model, contg. **organometallic** additives, characterization of metal-soot systems in relation to)

IT 102-54-5, Ferrocene 14024-18-1, Ferric acetylacetonate 14364-93-3, Iodotrimethyl **platinum**
RL: USES (Uses)
(**diesel** fuel additives, soot suppressants, TEM study of soot-metal systems in relation to)

L6 ANSWER 30 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1980:552946 CAPLUS
DN 93:152946
ED Entered STN: 12 May 1984
TI On-board detection of antiknock compounds in automotive **gasoline**
IN Buchholz, Jeffrey C.
PA General Motors Corp., USA
SO U.S., 8 pp.
CODEN: USXXAM
DT Patent
LA English
IC G01N027-26
NCL 204001000T
CC 51-6 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 47, 72, 80
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4203807	A	19800520	US 1979-22337	19790320
	US 4342628	A	19820803	US 1981-266727	19810526

PRAI US 1979-22337 19790320
US 1979-92514 19791108
CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 4203807	IC	G01N027-26
	NCL	204001000T

AB Org. Pb or Mn antiknock compds. in **gasoline** are detected by shaking the **gasoline** with an immiscible soln. of KOH in MeOH, which forms the electrolyte of an electrochem. cell having a stainless steel anode and a Zn cathode. The metal from the org. deriv. is extd. into the alc. and the metal deposits on the cathode. The method can be used on a vehicle by placing in the **fuel** supply a cathode with 2 closely spaced Zn surfaces, the elec. resistance between which is decreased when a predetd. amt. of metal forms a continuous deposit between them.
ST **gasoline** antiknock compd detection; electrochem cell **gasoline** analysis; lead compd **gasoline** detection; **manganese** compd **gasoline** detection
IT Electrolytic cells
(for **organometallic** antiknock compd. detection in **gasoline**)
IT **Gasoline** additives
(antiknock, **organometallic**, electrolytic app. for detection of)
IT 78-00-2 12108-13-3
RL: PROC (Process)
(in **gasoline**, electrolytic app. for detection of)

L6 ANSWER 31 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1973:496466 CAPLUS
DN 79:96466
ED Entered STN: 12 May 1984
TI Reducing the proportion of carbon monoxide and unburned substances in **gasoline**-type internal-combustion-engine exhaust gas
IN Trambouze, Yves J.; Bottazzi, Henry J.; Henry, J.
SO Fr. Addn., 4 pp. Addn. to Fr. 2,129,277 (CA 78;164814e).
CODEN: FAXXA3
DT Patent
LA French
IC C10L
CC 59-2 (Air Pollution and Industrial Hygiene)
Section cross-reference(s): 51
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	FR 2153782	A6	19730504	FR 1971-34337	19710921
	BE 780352	A1	19720703	BE 1972-114806	19720308
PRAI	FR 1971-10060		19710318		
	FR 1971-34337		19710921		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
FR 2153782	IC	C10L

AB The proportion of the **organometallic** compd. added to the **fuel** of the principal patent is 30-120 ppm. Such addn. also diminishes the temp. of the combustion cylinder and as a result the amt. of N oxides in the exhaust gas is decreased.
ST carbon monoxide redn engine; **organometallic** compd addn **gasoline**; nitrogen oxide redn exhaust gas
IT Exhaust gases
(air pollution by, control of, by tricarbonylmethylcyclopentadienyl

manganese)
IT Air pollution
(control of, by exhaust, tricarbonylmethylcyclopentadienyl **manganese** in)
IT **Gasoline** additives
(tricarbonylmethylcyclopentadienyl **manganese**, exhaust control by)
IT 12108-13-3
RL: OCCU (Occurrence)
(**gasoline** additive, for exhaust control)
IT 630-08-0, uses and miscellaneous 11104-93-1
RL: USES (Uses)
(in exhaust, **gasoline** additive for control of)

L6 ANSWER 32 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1965:470764 CAPLUS
DN 63:70764
OREF 63:12957h,12958a
ED Entered STN: 22 Apr 2001
TI Dual fuel-cycle **diesel** engine operation
IN Lovell, Wheeler G.
PA Ethyl Corp.
SO 9 pp.
DT Patent
LA Unavailable
NCL 123001000
CC 27 (Petroleum and Petroleum Derivatives)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3202141		19650824	US	19600229

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 3202141	NCL	123001000

AB A dual fuel-cycle engine is operated with a gaseous fuel (e.g. liquefied petroleum gas) and **diesel** fuel. The gaseous fuel contains an **organometallic** combustion-control additive, e.g. Me4Pb, at metal concns. of 0.001-0.5 wt.%. The fuel is introduced into the combustion chamber with air, compressed to 1/12 to 1/22, and ignited with a charge of **diesel** fuel. The ratio of the **diesel** fuel to gaseous fuel is 0.01:1 to 1:1. The **diesel** fuel may also contain 0.001-1% combustion-control additive, such as methyleyclopentadienylmanganese tricarbonyl.
IT Heaters
(catalytic, in exhaust combustion ignition in petroleum recovery by underground combustion)
IT Combustion
(in **diesel** engine with dual fuel cycle, improvement by antiknock agents)
IT Ignition
(in petroleum recovery by underground combustion)
IT 75-74-1, Lead, tetramethyl-
(as combustion-control additive to gaseous fuel in dual fuel-cycle operation of **diesel** engines)
IT 12079-65-1, **Manganese**, tricarbonylcyclopentadienyl-
12108-13-3, **Manganese**, tricarbonyl(methylcyclopentadienyl)-
(as combustion-control additive to liquid fuel in dual fuel-cycle operation of **diesel** engines)

L6 ANSWER 33 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text

AN 1965:453747 CAPLUS
DN 63:53747
OREF 63:9731g-h
ED Entered STN: 22 Apr 2001
TI **Diesel** oil-gas oil mixtures
IN Kazaz, Varam; Bullini, Bruno
SO 4 pp.
DT Patent
LA Unavailable
IC C10G
CC 27 (Petroleum and Petroleum Derivatives)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI IT 655199		19630708	IT	19610912

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
IT 655199	IC	C10G

AB **Diesel** oil mixts. are treated with compns. contg. a Cr-Co acetylacetonate (which contains traces of Ni) (I), an **organometallic** compd., where the metal is Ba, Sr, or Mn, and a surfactant to reduce the formation of noncombustibles and give fuels that burn more efficiently. Thus, a mixt. contg. 10-12 wt. % **organometallic** salt, 20-30% aromatic solvents, and 60-80 wt. % xylene or PhMe is added to a mixt. of 3-8 wt. % I and 4-8 wt. % Ba, Sr, and Mn oxides to give a compn. (II); and II is added to a **diesel** fuel to give a product (contg. 0.25% II), 0.090 wt. % H2S04 (from combustion), 0.097 wt. % carbonaceous residue, as compared with 3.099 and 0.190, resp., for the control.
IT Combustion
(of **diesel** oil-gas oil mixt., compn. for improving)
IT Chromium compounds, with 2,4-pentanedione
Chromium compounds, with Co
Cobalt, with 2,4-pentanedione
Cobalt, with Cr
(combustion improver contg., for **diesel** oil-gas mixt.)
IT 7439-96-5, **Manganese**
(combustion improver contg., for **diesel** oilgas oil mixt.)
IT 7440-39-3, Barium
(compds., combustion improver contg., for **diesel** oil-gas oil mixt.)
IT 7440-24-6, Strontium
(compds., combustion improver contg., for **diesel** oilgas oil mixt.)
IT 123-54-6, 2,4-Pentanedione
(complexes, Cr and Co, combustion improver contg., for **diesel** oil-gas mixt.)

L6 ANSWER 34 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1965:89855 CAPLUS
DN 62:89855
OREF 62:15971h,15972a
ED Entered STN: 22 Apr 2001
TI Co-antiknock agents for **gasoline**
IN Henderson, Hubert T.
PA Shell Oil Co.
SO 7 pp.
DT Patent
LA Unavailable
NCL 044066000
CC 27 (Petroleum and Petroleum Derivatives)

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 3179506		19650420	US	19610630

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 3179506	NCL	044066000

AB Certain classes of org. esters added to **gasoline** contg. **organometallic** antiknock agents, e.g. lower alkyl Pb compds. and Mn compds., raise the octane rating 2 nos. Thus, a motor **gasoline fuel** contains catalytic reformate 99.30% by vol., 2-chloroethyl acetate 0.70% by vol., and Et4Pb at 2.7 g. Pb/gal.

IT **Gasoline**
(antiknock additives for, esters as)

IT 542-58-5, Ethanol, 2-chloro-, acetate
(as **gasoline** additive)

IT 7439-92-1, Lead 7439-96-5, **Manganese**
(**gasoline** contg., antiknock additives for)

L6 ANSWER 35 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text

AN 1965:8468 CAPLUS
DN 62:8468
OREF 62:1499a-c
ED Entered STN: 22 Apr 2001
TI Oil-soluble **organometallic** chelates for use as **fuel** and lubricant additives
IN Ramsden, Hugh E.
PA Esso Research and Engineering Co.
SO 6 pp.
DT Patent
LA Unavailable
NCL 260429000
CC 27 (Petroleum and Petroleum Derivatives)

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 3157682		19641117	US	19601104

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 3157682	NCL	260429000

AB Reaction of an ionic metal salt in an aq. medium with a metallic acid acceptor or base and a β-keto ester soln. forms an oil-sol. metallic chelate. The presence of H2O or other ionizing medium like pyridine to form the chelate is crit., since the reaction steps leading to the chelate are ionic. After formation of the chelate, the removal of H2O is desirable to prevent side reactions and hydrolysis. This is preferably accomplished by reaction of the alc. of the keto ester used in the chelate reaction. The β-keto esters used have the formula RCOCHR''CO2R', in which R'' is preferably H and R and R' are C1-30 alkyl groups. Thus, 2 moles COCl2.6H2O and 4 moles isooctyl acetoacetate were stirred and 3.6 moles NaOH in 1200 ml. H2O was added slowly. After filtration, the layers sepd. The top layer was 1210 g. deep rose oil (3.16% Co). Uses are antiknock and combustion improvers for **gasoline** and **diesel fuel** and as lubricant additives. Prepn. of cupric, cobaltous, manganous, and niekelous bis(isooctyl acetoacetates), La tris(isooctyl acetoacetate), and nickelous and Pr C8 oxo acetoacetates are described.

IT **Gasoline**
(antiknock additives for, β-keto ester chelates as)

IT Chemical compounds

(chelate, as **gasoline** additives)
IT Detonation
(in engine, β-keto ester chelates in preventing)
IT Acetoacetic acid, isooctyl ester
Isooctyl alcohol, acetoacetate
(metal complexes, as **gasoline** additives)
IT 14051-94-6, Cobalt, bis(hydrogen acetoacetato)-, diisooctyl ester
14051-95-7, Copper, bis(hydrogenacetoacetato)-, diisooctyl ester
106547-94-8, Nickel, bis(hydrogen acetoacetato)-, diisooctyl ester
106744-29-0, **Manganese**, bis(hydrogen acetoacetato)-, diisooctyl ester 107062-12-4, Lanthanum, tris(hydrogen acetoacetato)-, triisooctyl ester
(as **gasoline** additive)

L6 ANSWER 36 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1962:483381 CAPLUS
DN 57:83381
OREF 57:16657i,16658a-e
ED Entered STN: 22 Apr 2001
TI Organo-bimetallic compositions
IN Gorsich, Richard D.
PA Ethyl Corp.
SO 7 pp.
DT Patent
LA Unavailable
CC 33 (Organometallic and Organometalloidal Compounds)

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 3050537		19620821	US	19600805

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 3050537		

AB Compds. of the general formula RnM4[M7(CO)5]4-n (I) (R = alkyl, aryl, cycloalkyl, aralkyl; M4 = Si, Ge, Sn, Pb; M7 = Mn, Tc, Re; n = 2,3) are prepd. by treating alkali metal carbonyl compds. of Mn, Tc, or Re having the formula M1[M7(CO)5] with organo-metal halides RmM4X4-m (X = halogen, m = 1,2) in the presence of an inert org. solvent. The compds. are potent antiknock agents and excellent antiwear agents in lubricants. Thus, a mixt. of 19.5 g. Mn pentacarbonyl dimer, Na amalgam (5 g. Na and 500 g. Hg) and 500 ml. tetrahydrofuran is stirred at room temp. 0.5 hr., the Hg sepd., 38 g. Ph3SnCl added, the mixt. reduced to about half vol. by distn., poured into ice-H2O, the solid filtered off, dried, and extd. with hot hexane, the combined exts. concd. to 70 ml., cooled, and the crystals filtered off and dried at room temp. under reduced pressure to give 85% Ph3SnMn(CO)5, m. 148-50°. Similarly are prepd. the following I (I, % yield, b.p. (mm.), m.p. given): Me2Pb[Mn(CO)5]2, 22, -, 108-10°; Me3PbMn(CO)5 (II), 46, 60-2° (3), 30-1°; Me2Sn-[Mn(CO)5]2 (III), 98, -, 102-4°; Ph3PbMn(CO)5, 82, -, 146-8°; Et2Pb[Mn(CO)5]2, 66, -, 77-9°; Et3PbMn(CO)5, 76, 70-5° (0.16), -; Ph2Sn[Mn(CO)5]2, 82, -, 137-9°; Me2Si[Mn(CO)5]2, -, -, -; [Me(CH2)7]3 ,SiMn(CO)5, -, -, -; [2,4-Me2C6H3]3SiMn(CO)5, -, -, -; (PhCH2)2Si[Re(CO)5]2, -, -, -; bis(n-dodecylcyclopentadienyl)-geranium bis(**manganese** pentacarbonyl), -, -, -; tris-(diethylcyclopentadienyl)germanium **manganese** pentacarbonyl -, -, -; Bu3GeMn(CO)5, -, -, -; [Me-(CH2)17]2Ge[Re(CO)5]2, -, -, -; [Ph(CH2)2]2Sn[Mn(CO)5]2, -, -, -; tris(ethylcyclopentadienyl)tin **manganese** pentacarbonyl, -, -, -; tris(dimethylcyclopentadienyl)tin rhenium pentacarbonyl, -, -, -; bis(ethylpropylcyclopentadienyl)tin bis(rhenium pentacarbonyl), -, -, -; Et SnRe(CO)5, -, -, -; [Me(CH2)11]2Pb[Mn(CO)5]2, -, -, -; (o-MeC6H4)PbMn(CO)5, -, -, -;

bis(acetylcyclohexyl)lead bis(rhenium pentacarbonyl), -, -, -; tris(octadecylcyclopentyl)lead rhenium pentacarbonyl, -, -, -. II is more than 9 times as effective as Mn(CO)5 in raising the octane no. of leaded **fuels**. Addn. of 2% III to a mid-continent solvent-extd. mineral oil results in a marked diminution in wear as tested by the four-ball wear machine.

IT **Gasoline**
(antiknock additives for, bimetallic **organometallic** compds. as)

IT Lubricants
(antiwear additives for, bimetallic **organometallic** compds.)

IT **Organometallic** compounds
(bimetallic)

IT Lead, diethyldihydro-
(bis(pentacarbonylmanganese) deriv.)

IT Lead, hydrotriphenyl-
(pentacarbonylmanganese deriv.)

IT 1011-95-6, Tin, dihydrodiphenyl- 2067-76-7, Tin, dihydrodimethyl- 30691-92-0, Lead, dihydrodimethyl-
(bis(pentacarbonylmanganese) deriv.)

IT 7442-13-9, Lead, hydrotrimethyl-
(pentacarbonyl **manganese** deriv.)

IT 892-20-6, Tin, triphenyl hydride 5224-23-7, Lead, triethylhydro-
(pentacarbonylmanganese deriv.)

IT 14405-84-6, **Manganese**, pentacarbonyl(triphenylstannyl)-
15219-87-1, **Manganese**, (dimethylstannylene)bis[pentacarbonyl-
15219-88-2, **Manganese**, (diphenylstannylene)bis[pentacarbonyl-
25434-98-4, **Manganese**, pentacarbonyl(triethylplumbyl)-
34314-19-7, **Manganese**, pentacarbonyl(triphenylplumbyl)-
36527-71-6, **Manganese**, pentacarbonyl(trimethylplumbyl)-
42167-74-8, **Manganese**, (dimethylplumbylene)bis[pentacarbonyl-
95297-13-5, **Manganese**, (diethylplumbylene)bis[pentacarbonyl-
(prepn. of)

L6 ANSWER 37 OF 37 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text
AN 1961:35087 CAPLUS
DN 55:35087
OREF 55:6848i,6849a-b
ED Entered STN: 22 Apr 2001
TI Stabilization of motor **fuels** containing **organometallic** antiknock additives
IN Lynch, Maurice A., Jr.
PA Union Carbide Corp.
DT Patent
LA Unavailable
CC 22 (Petroleum, Lubricants, and Asphalt)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 843088		19600804	GB	
	DE 1133599			DE	

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
GB 843088		

AB Cyclopentadienyl **manganese** tricarbonyl (I) and its derivs. decomp. in the presence of light to yield a gelatinous ppt., thereby removing the antiknock additive from the **fuel**. The ppt. (empirical formula MnC4H9O4) is white in the absence of air and turns brown when exposed to air. Infrared analysis shows the presence of OH groups and a small concn. of CO groups in the brown product. The ppt. is not affected by H2O, swells in dil. alkali, and dissolves in dil. acid with the evolution of gas. It is

insol. in common org. solvents. Formation of the ppt. is brought about by light of 2500-5500 A. The absorption spectrum of C5H5Mn(CO)3 shows a broad band at 3300 A. Haze formation in **fuels** contg. the carbonyls can be inhibited by the addn. of a substance which absorbs light in the 2500-5500-A. region. Suitable substances are phenylazo-2-naphthol and p-dimethylaminoazobenzene. Solns. of these dyes as light filters external to solns. of I in hexane prevent haze formation in the latter soln. for >24 hrs., and the addn. of the dyes directly to the soln. delays the formation of a ppt. for several hrs., the time depending on the dye concn. The dyes have no adverse effect on antiknock properties of the carbonyl compd.

IT **Gasoline**
(antiknock additives for, cyclopentadienylmanganese tricarbonyl and derivs. stabilized by light absorbers as)

IT 842-07-9, 2-Naphthol, 1-phenylazo- 6257-64-3, Aniline, 4,4'-azobis[N,N-dimethyl-
(**gasoline** contg. cyclopentadienylmanganese tricarbonyl stabilized by)

IT 12079-65-1, Cyclopentadienylmanganese tricarbonyl
(**gasoline** contg., stabilized by light absorbers)

=> log hold

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	124.40	232.37

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-25.90	-48.30

SESSION WILL BE HELD FOR 60 MINUTES
STN INTERNATIONAL SESSION SUSPENDED AT 18:13:15 ON 22 SEP 2004

* * * * * * RECONNECTED TO STN INTERNATIONAL * * * * * *
SESSION RESUMED IN FILE 'CAPLUS' AT 18:22:48 ON 22 SEP 2004
FILE 'CAPLUS' ENTERED AT 18:22:48 ON 22 SEP 2004
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COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	124.40	232.37

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-25.90	-48.30

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